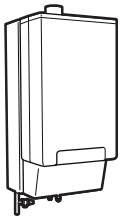
Installation manual

Daikin Altherma R Hybrid



CHYHBH05AF
CHYHBH08AF

Installation manual
Daikin Altherma R Hybrid

English

CE - DECLARATION-OF-CONFORMITY
CE - KONFORMITÄTSERKLÄRUNG
CE - DECLARATION-DE-CONFORMITE
CE - CONFORMITEITSVERKLARING

CE - DECLARACION-DE-CONFORMIDAD
CE - DICHIARAZIONE-DI-CONFORMITA
CE - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ

CE - DECLARAÇÃO-DE-CONFORMIDADE
CE - ЗАЯВЛЕНИЕ-О-СООТВЕТСТВИИ
CE - OVERENSSTEMMELSESERKLÆRING
CE - FÖRSÄKRAN-OM-ÖVERENSTÄMMELSE

CE - ERKLÆRING OM-SAMSVAR
CE - ILMOITUS-YHDENMUKAISUUDESTA
CE - PROHLÁŠENÍ-O-SHODĚ

CE - IZJAVA-O-USKLAĐENOSTI
CE - MEGFELELŐSÉGI-NYILATKOZAT
CE - DEKLARACJA-ZGODNOŚCI
CE - DECLARAŢIE-DE-CONFORMITATE

CE - IZJAVA O SKLADNOSTI
CE - VASTAVUSDEKLARATSIOON
CE - ДЕКЛАРАЦИЯ-ЗА-СЪОТВЕТСТВИЕ

CE - ATITIKTIES-DEKLARACIJA
CE - ATBILSTĪBAS-DEKLARĀCIJA
CE - VYHLÁSENIE-ZHODY
CE - UYGUNLUK-BEYANI

Daikin Europe N.V.

01 declares under its sole responsibility that the equipment to which this declaration relates:
02 erklärt auf seine alleinige Verantwortung daß die Ausrüstung für die diese Erklärung bestimmt ist:
03 déclare sous sa seule responsabilité que l'équipement visé par la présente déclaration:
04 verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de apparatuur waarop deze verklaring betrekking heeft:
05 declara bajo su única responsabilidad que el equipo al que hace referencia la declaración:
06 dichiara sotto la propria responsabilità che gli apparecchi a cui è riferita questa dichiarazione:
07 δηλώνει με αποκλειστική της ευθύνη ότι ο εξοπλισμός στον οποίο αναφέρεται η παρούσα δήλωση:
08 declara sob sua exclusiva responsabilidade que os equipamentos a que esta declaração se refere:
09 заявляет, исключительно под свою ответственность, что оборудование, к которому относится настоящее заявление:
10 erklærer under eneansvarlig, at udstyret, som er omfattet af denne erklæring:
11 deklarerar i egenskap av huvudansvarig, att utrustningen som berörs av denna deklaration innebär att:
12 erklærer et fullstendig ansvar for at det utstyr som berøres av denne deklarasjon innebærer at:
13 ilmoittaa yksinomaan omalla vastuullaan, että tämän ilmoituksen tarkoittamat laitteet
14 prohlašuje ve své plné odpovědnosti, že zařízení, k němuž se toto prohlášení vztahuje:
15 izjavljuje pod isključivo vlastitom odgovornošću da oprema na koju se ova izjava odnosi:
16 teljes felelősségé tudatában kijelenti, hogy a berendezések, melyekre e nyilatkozat vonatkozik:
17 deklaruje na własną i wyłączną odpowiedzialność, że urządzenia, których ta deklaracja dotyczy:
18 declară pe proprie răspundere că echipamentele la care se referă această declaraţie:
19 z vso odgovornostjo izjavlja, da je oprema naprav, na katero se izjava nanaša:
20 kinnitab oma täielikul vastutusel, et käesoleva deklaratsiooni alla kuuluv varustus:
21 декларира на своя отговорност, че оборудването, за което се отнася тази декларация:
22 visiška savo atsakomybe skelbia, kad įranga, kuriai taikoma ši deklaracija:
23 ar pilnu atbildību apliecina, ka tālāk aprakstītās iekārtas, uz kurām attiecas šī deklarācija:
24 vyhlasuje na vlastnú zodpovednosť, že zariadenie, na ktoré sa vzťahuje toto vyhlásenie:
25 tamamen kendi sorumluluğunda olmak üzere bu bildirinin ilgili olduğu donanımının aşağıdaki gibi olduğunu beyan eder:

CHYHBH05AFV32, CHYHBH08AFV32,

01 are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
02 der/den folgenden Norm(en) oder einem anderen Normdokument oder -dokumenten entspricht/entsprechen, unter der Voraussetzung, daß sie gemäß unseren Anweisungen eingesetzt werden:
03 sont conformes à la/aux norme(s) ou autre(s) document(s) normatif(s), pour autant qu'ils soient utilisés conformément à nos instructions:
04 conform de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
05 están en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
06 sono conformi al(i) seguente(i) standard(s) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:
07 είναι σύμφωνα με το(α) ακόλουθο(α) πρότυπο(α) ή άλλο έγγραφο(α) κανονισμών, υπό την προϋπόθεση ότι χρησιμοποιούνται σύμφωνα με τις οδηγίες μας:
08 estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
09 соответствуют следующим стандартам или другим нормативным документам, при условии их использования согласно нашим инструкциям:
10 overholder følgende standard(er) eller andet/andre retningsgivende dokument(er), forudsat at disse anvendes i henhold til vore instrukser:
11 respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner:
12 respektive utstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forutsetning av at disse brukes i henhold til våre instrukser:
13 vastaavat seuraavien standardien ja muiden ohjeellisten dokumenttien vaatimuksia edellyttäen, että niitä käytetään ohjeidemme mukaisesti:
14 za předpokladu, že jsou využívány v souladu s našimi pokyny, odpovídají následujícím normám nebo normativním dokumentům:
15 u skladu sa slijedećim standardom(ima) ili drugim normativnim dokumentom(ima), uz uvjet da se oni koriste u skladu s našim uputama:
16 megfelelnek az alábbi szabvány(ok)nak vagy egyéb irányadó dokumentum(ok)nak, ha azokat előírás szerint használják:
17 spełniają wymogi następujących norm i innych dokumentów normalizacyjnych, pod warunkiem że używane są zgodnie z naszymi instrukcjami:
18 sunt în conformitate cu următorul (următoarele) standard(e) sau alt(e) document(e) normativ(e), cu condiţia ca acestea să fie utilizate în conformitate cu instrucţiunile noastre:
19 skladni z naslednjimi standardi in drugimi normativi, pod pogojem, da se uporabljajo v skladu z našimi navodili:
20 on vastavuses järgmis(t)e standardi(te)ga või teiste normatiivsete dokumentidega, kui neid kasutatakse vastavalt meie juhenditele:
21 съответстват на следните стандарти или други нормативни документи, при условие, че се използват съгласно нашите инструкции:
22 atitinka žemiau nurodytus standartus ir (arba) kitus norminius dokumentus su sąlyga, kad yra naudojami pagal mūsų nurodymus:
23 tad, ja lietoti atbilstoši ražotāja norādījumiem, atbilst sekojošiem standartiem un citiem normatīviem dokumentiem:
24 sú v zhode s nasledovnou(ými) normou(ami) alebo iným(i) normatívnym(i) dokumentom(ami), za predpokladu, že sa používajú v súlade s našim návodom:
25 ürünün, talimatlarımıza göre kullanılması koşuluyla aşağıdaki standartlar ve norm belirten belgelerle uyumludur:

EN60335-2-40,

01 following the provisions of:
02 gemäß den Vorschriften der:
03 conformément aux stipulations des:
04 overeenkomstig de bepalingen van:
05 siguiendo las disposiciones de:
06 secondo le prescrizioni per:
07 με τήρηση των διατάξεων των:
08 de acordo com o previsto em:
09 в соответствии с положениями:
10 under iagttagelse af bestemmelserne i:
11 enligt villkoren i:
12 gitt i henhold til bestemmelsene i:
13 noudattaen määräyksiä:
14 za dodržení ustanovení předpisu:
15 prema odredbama:
16 követi a(z):
17 zgodnie z postanowieniami Dyrektyw:
18 în urma prevederilor:
19 ob upoštevanju določb:
20 vastavalt nõuetele:
21 следвайки клаузите на:
22 laikantis nuostatų, pateikiamų:
23 ievērojot prasības, kas noteiktas:
24 održiavajúc ustanovenia:
25 bunun koşullarına uygun olarak:

Low Voltage 2014/35/EU
Electromagnetic Compatibility 2014/30/EU *

01 Directives, as amended.
02 Direktiven, gemäß Änderung.
03 Directives, telles que modifiées.
04 Richtlijnen, zoals geamendeerd.
05 Directivas, según lo enmendado.
06 Direttive, come da modifica.
07 Οδηγιών, όπως έχουν τροποποιηθεί.
08 Directivas, conforme alteração em.
09 Директив со всеми поправками.
10 Direktiver, med senere ændringer.
11 Direktiv, med företagna ändringar.
12 Direktiver, med foretatte endringer.
13 Direktiivejä, sellaisina kuin ne ovat muutettuina.
14 v platném znění.
15 Smjernice, kako je izmijenjeno.
16 irányelv(ek) és módosításaik rendelkezéseit.
17 z późniejszymi poprawkami.
18 Directivelor, cu amendamentele respective.
19 Direktive z vsemi spremembami.
20 Direktiivid koos muudatustega.
21 Директиви, с техните изменения.
22 Direktyvose su papildymais.
23 Direktīvās un to papildinājumos.
24 Smernice, v platnom znení.
25 Değiştirilmiş halleriyle Yönetmelikler.

01 Note* as set out in <A> and judged positively by <B> according to the **Certificate <C>**.
02 Hinweis* wie in <A> aufgeführt und von <B> positiv beurteilt gemäß **Zertifikat <C>**.
03 Remarque* tel que défini dans <A> et évalué positivement par <B> conformément au **Certificat <C>**.
04 Bemerk* zoals vermeld in <A> en positief beoordeeld door <B> overeenkomstig **Certificaat <C>**.
05 Nota* como se establece en <A> y es valorado positivamente por <B> de acuerdo con el **Certificado <C>**.
06 Nota* delineato nel <A> e giudicato positivamente da <B> secondo il **Certificato <C>**.
07 Σημείωση* όπως καθορίζεται στο <A> και κρίνεται θετικά από το <B> σύμφωνα με το **Πιστοποιητικό <C>**.
08 Nota* tal como estabelecido em <A> e com o parecer positivo de <B> de acordo com o **Certificado <C>**.
09 Примечание* как указано в <A> и в соответствии с положительным решением <B> согласно **Свидетельству <C>**.
10 Bemærk* som anført i <A> og positivt vurderet af <B> i henhold til **Certifikat <C>**.
11 Information* enligt <A> och godkänts av <B> enligt **Certifikatet <C>**.
12 Merk* som det fremkommer i <A> og gjennom positiv bedømmelse av <B> ifølge **Sertifikat <C>**.
13 Huom* jotka on esitetty asiakirjassa <A> ja jotka <B> on hyväksynyt **Sertifikaatin <C>** mukaisesti.
14 Poznámka* jak bylo uvedeno v <A> a pozitivně zjištěno <B> v souladu s **osvědčením <C>**.
15 Napomena* kako je izloženo u <A> i pozitivno ocijenjeno od strane <B> prema **Certifikatu <C>**.
16 Megjegyzés* a(z) <A> alapján, a(z) <B> igazolta a megfelelést, a(z) **<C> tanúsítvány** szerint.
17 Uwaga* zgodnie z dokumentacją <A>, pozytywną opinią <B> i **Świadectwem <C>**.
18 Notă* aşa cum este stabilit în <A> şi apreciat pozitiv de <B> în conformitate cu **Certificatul <C>**.
19 Opomba* kot je določeno v <A> in odobreno s strani <B> v skladu s **certifikatom <C>**.
20 Märkus* nagu on näidatud dokumendis <A> ja heaks kiidetud <B> järgi vastavalt **sertifikaadile <C>**.
21 Забележка* както е изложено в <A> и оценено положително от <B> съгласно **Сертификата <C>**.
22 Pastaba* kaip nustatyta <A> ir kaip teigiamai nuspręsta <B> pagal **Sertifikatą <C>**.
23 Piezīmes* kā norādīts <A> un atbilstoši <B> pozitīvajam vērtējumam saskaņā ar **sertifikātu <C>**.
24 Poznámka* ako bolo uvedené v <A> a pozitívne zistené <B> v súlade s **osvedčením <C>**.
25 Not* <A>'da belirtildiği gibi ve <C> **Sertifikasına** göre <B> tarafından olumlu olarak değerlendirildiği gibi.

<A>	DAIKIN.TCF.025J07/10-2020
<B>	DEKRA (NB0344)
<C>	2082543.0551-QUA/EMC

3P353176-6G

Hiromitsu Iwasaki
Director
Ostend, 1st of February 2021

DAIKIN EUROPE N.V.
Zandvoordestraat 300, B-8400 Oostende, Belgium

Table of contents

1 About the documentation

1.1 About this document

Target audience

Authorised installers

Documentation set

This document is part of a documentation set. The complete set consists of:

- **General safety precautions:**
  - Safety instructions that you must read before installing
  - Format: Paper (in the box of the indoor unit)
- **Heat pump module installation manual:**
  - Installation instructions
  - Format: Paper (in the box of the indoor unit)
- **Gas boiler module installation manual:**
  - Installation and operation instructions
  - Format: Paper (in the box of the gas boiler unit)
- **Outdoor unit installation manual:**
  - Installation instructions
  - Format: Paper (in the box of the outdoor unit)
- **Installer reference guide:**
  - Preparation of the installation, reference data,…
  - Format: Digital files on http://www.daikineurope.com/support-and-manuals/product-information/
- **Addendum book for optional equipment:**
  - Additional info about how to install optional equipment
  - Format: Paper (in the box of the indoor unit) + Digital files on http://www.daikineurope.com/support-and-manuals/product-information/

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

The original documentation is written in English. All other languages are translations.

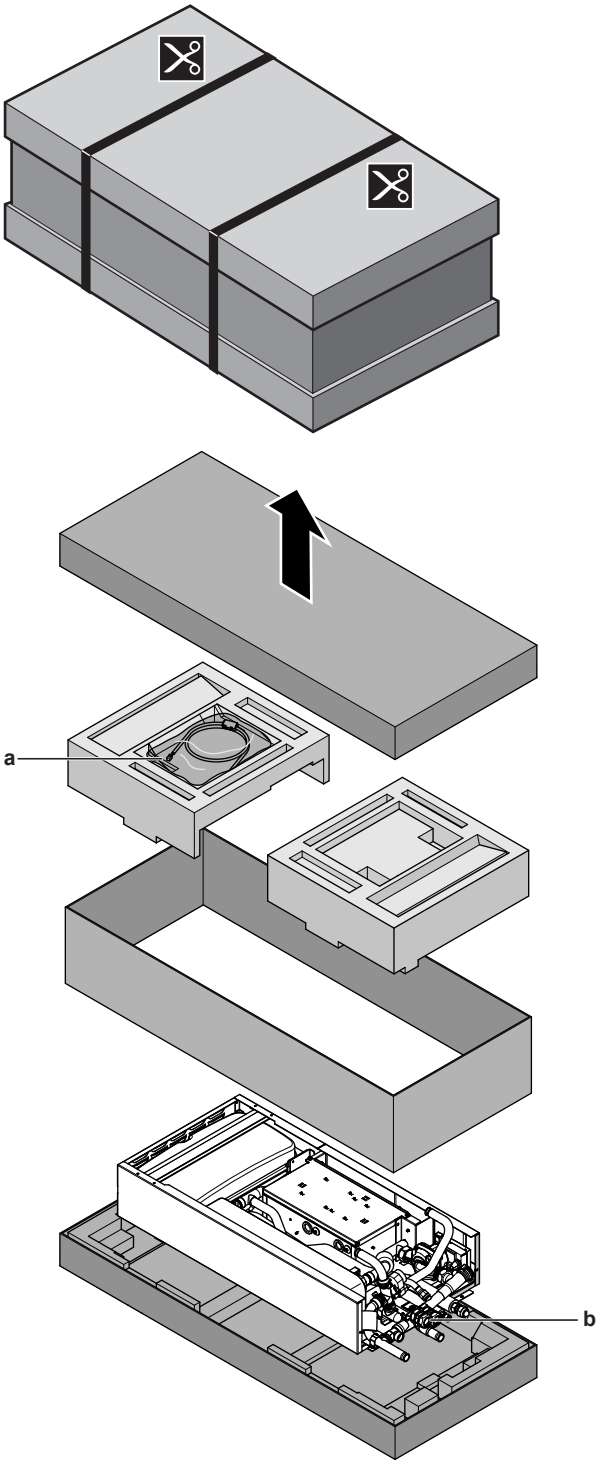
Technical engineering data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

2 About the box

2.1 Indoor unit

2.1.1 To unpack the indoor unit



a Installation manual, operation manual, addendum book for optional equipment, quick installation guide, general safety precautions, boiler communication cable, reducer accessory set.
b Connection pieces for the gas boiler

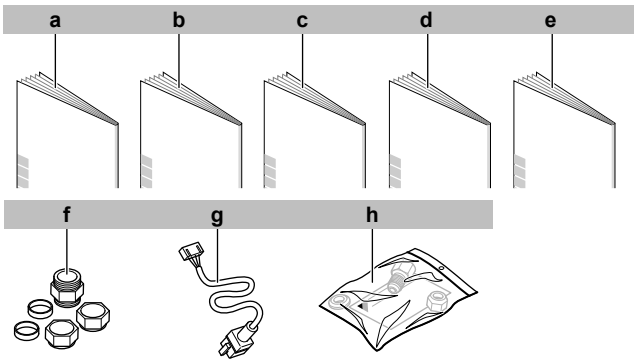
INFORMATION

Do NOT throw away the upper cardboard cover. On the outside of the cardboard cover, the installation pattern is printed.

2.1.2 To remove the accessories from the indoor unit

1 Remove the accessories as described in "2.1.1 To unpack the indoor unit" [▸ 3].

The installation manual, operation manual, addendum book for optional equipment, general safety precautions, quick installation guide, boiler communication cable and reducer accessory set are located in the upper part of the box. The connection pieces for the gas boiler are attached to the water piping.



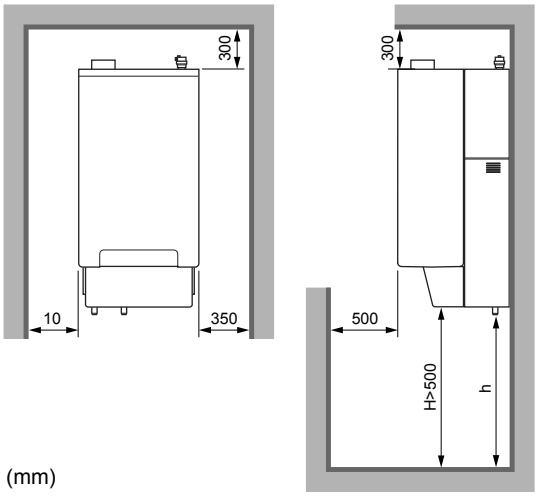
a General safety precautions
b Addendum book for optional equipment
c Indoor unit installation manual
d Operation manual
e Quick installation guide
f Connection pieces for gas boiler
g Boiler communication cable
h Reducer accessory set

3 Preparation

3.1 Preparing the installation site

3.1.1 Installation site requirements of the indoor unit

- Mind the following spacing installation guidelines:



(mm)

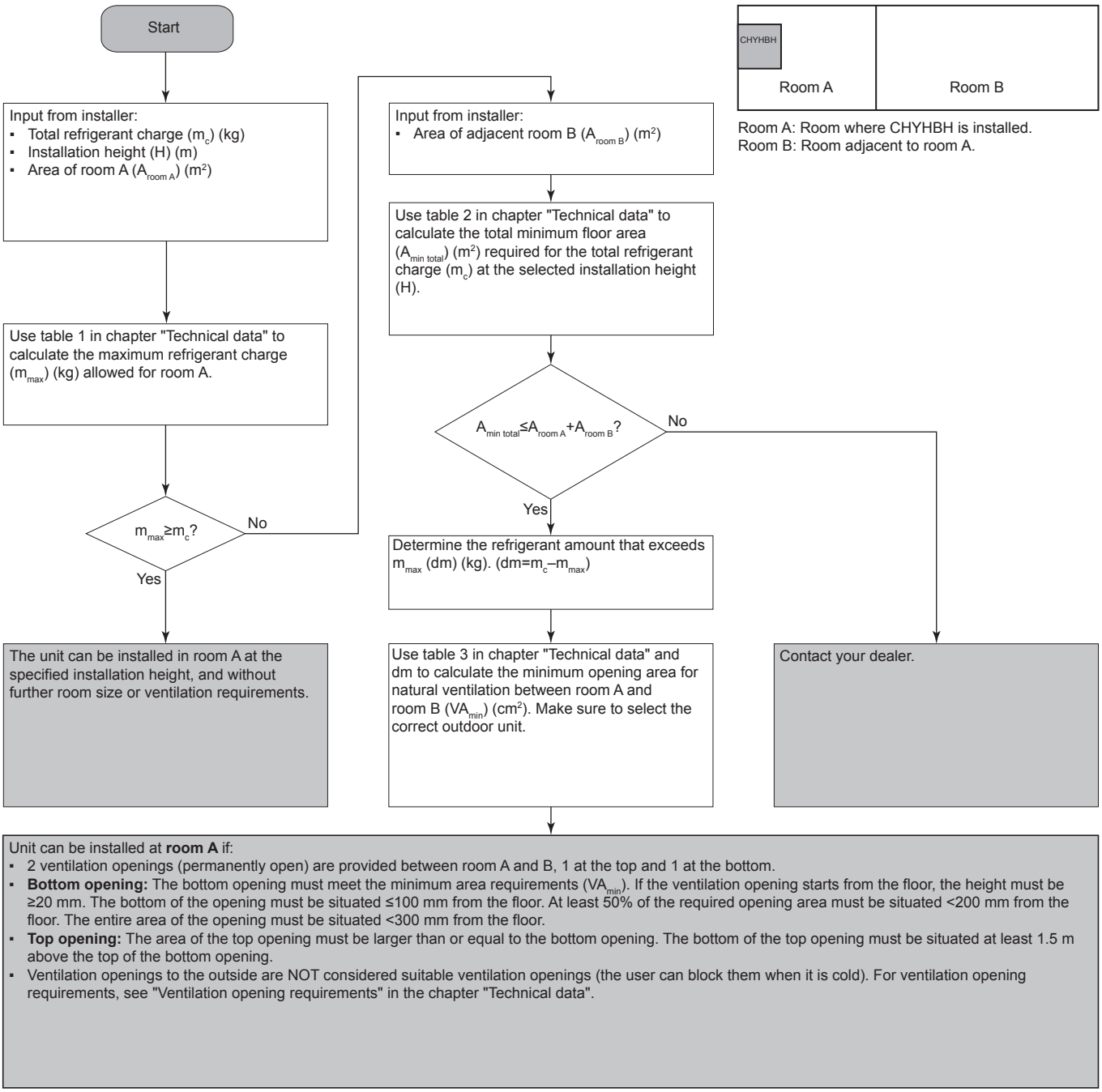
H Distance measured from the floor to the bottom of the casing of the gas boiler (minimum 500 mm, and in case of a valve mounting kit: 800 mm).
h Distance measured from the floor to the flare nut of the refrigerant piping.

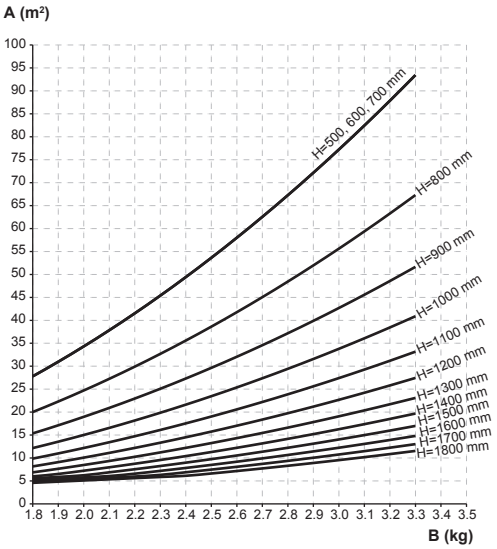
Special requirements for R32

If the total refrigerant charge in the system is >1.842 kg, you need to comply with the minimum floor area requirements as described in the following flow chart. The flow chart uses the following tables: "8.3 Table 1 – Maximum refrigerant charge allowed in a room: indoor unit" [▸ 27], "8.4 Table 2 – Minimum floor area: indoor unit" [▸ 29] and "8.5 Table 3 – Minimum venting opening area for natural ventilation: indoor unit" [▸ 30].

INFORMATION

Systems with a total refrigerant charge (m_c) ≤1.842 kg are NOT subjected to any requirements to the installation room.





A Minimum floor area for hybrid unit (m^2)
B Total refrigerant charge in the system (kg)
H The height measured from the floor to the bottom of the casing. The graph is based on the height measured from the floor to the flare nut.

- The indoor unit is designed for indoor installation only (in a technical room or similar) and for ambient temperatures ranging 5~30°C in heating mode.

3.2 Preparing water piping

NOTICE

In case of plastic pipes, make sure they are fully oxygen diffusion tight according to DIN 4726. The diffusion of oxygen into the piping can lead to excessive corrosion.

NOTICE

The unit is only to be used in a closed water system. Application in an open water circuit can lead to excessive corrosion of the water piping.

3.2.1 To check the water volume and flow rate

Minimum water volume

Check that the total water volume in the installation is minimum 13.5 litre, the internal water volume of the indoor unit NOT included.

INFORMATION

In critical processes, or in rooms with a high heat load, extra water might be required.

NOTICE

When circulation in each space heating/cooling loop is controlled by remotely controlled valves, it is important that the minimum water volume is guaranteed, even if all of the valves are closed.

Minimum flow rate

Check that the minimum flow rate (required during defrost/backup heater operation) in the installation is guaranteed in all conditions.

Minimum required flow rate	
05+08 models	9 l/min

NOTICE

When circulation in each or certain space heating loops is controlled by remotely controlled valves, it is important that the minimum flow rate is guaranteed, even if all valves are closed. In case the minimum flow rate cannot be reached, a flow error 7H will be generated (no heating or operation).

See the installer reference guide for more information.

See the recommended procedure as described in "6.2 Checklist during commissioning" [▶ 20].

3.3 Preparing electrical wiring

3.3.1 Overview of electrical connections for external and internal actuators

Item	Description	Wires	Maximum running current
Outdoor unit and indoor unit power supply			
1	Power supply for outdoor unit	2+GND	(a)
2	Power supply and interconnection cable to indoor unit	3+GND	(g)
3	Power supply gas boiler	2+GND	(c)
User interface			
4	User interface	2	(f)
Optional equipment			
5	3-way valve	3	100 mA(b)
6	Domestic hot water tank thermistor	2	(d)
7	Room thermostat/heat pump convector	3 or 4	100 mA(b)
8	Outdoor ambient temperature sensor	2	(b)
9	Indoor ambient temperature sensor	2	(b)
Field supplied components			
10	Shut-off valve	2	100 mA(b)
11	Domestic hot water pump	2	(b)
12	Alarm output	2	(b)
13	Changeover to external heat source control	2	(b)
14	Space heat operation control	2	(b)
15	Safety thermostat	2	(e)

(a) Refer to name plate on outdoor unit.
(b) Minimum cable section 0.75 mm^2.
(c) Use the cable supplied with the boiler.
(d) The thermistor and connection wire (12 m) are delivered with the domestic hot water tank.
(e) Cable section 0.75 mm^2 till 1.25 mm^2; maximum length: 50 m. Voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
(f) Cable section 0.75 mm^2 till 1.25 mm^2; maximum length: 500 m. Applicable for both single user interface and dual user interface connection.
(g) Cable section 1.5 mm^2; maximum length: 50 m.

NOTICE

More technical specifications of the different connections are indicated on the inside of the indoor unit.

4 Installation

4.1 Opening the units

4.1.1 To open the switch box cover of the indoor unit

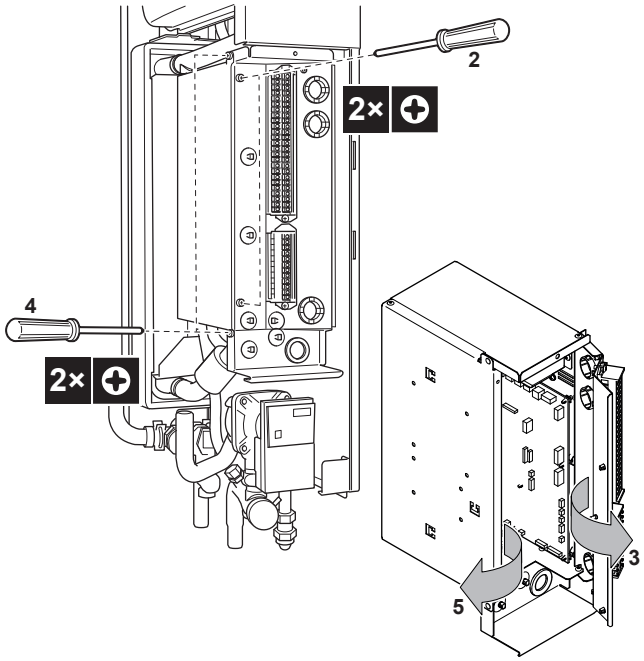
1 Remove the side panel at the right side of the indoor unit. The side panel is fixed at the bottom with 1 screw.

2 Remove the upper and lower screw on the side panel of the switch box.

3 The right panel of the switch box will open.

4 Remove the upper and lower screw on the front panel of the switch box.

5 The front panel of the switch box will open.

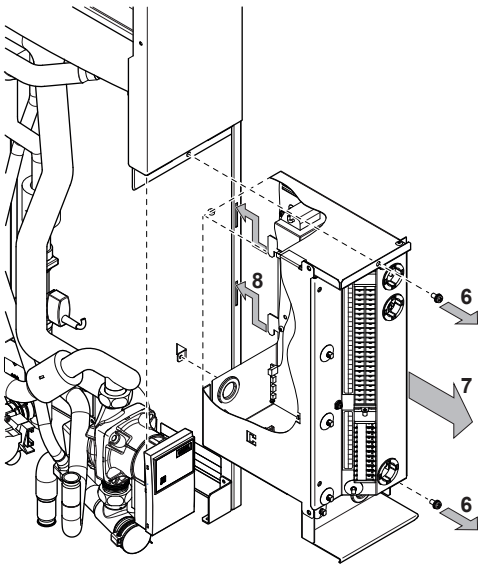


When the boiler is installed and access to the switch box is required, please follow the steps below.

6 Remove the upper and lower screw on the side panel of the switch box.

7 Remove the switch box from the unit.

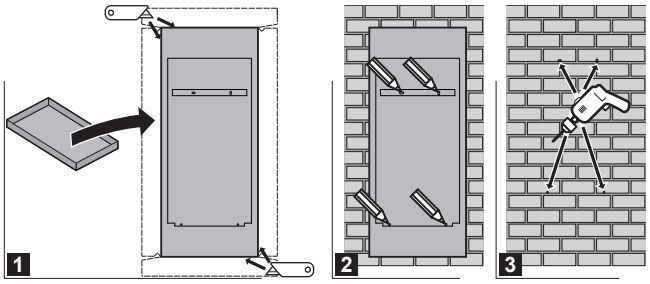
8 Hook the switch box to the side of the unit with the hooks foreseen on the switch box.



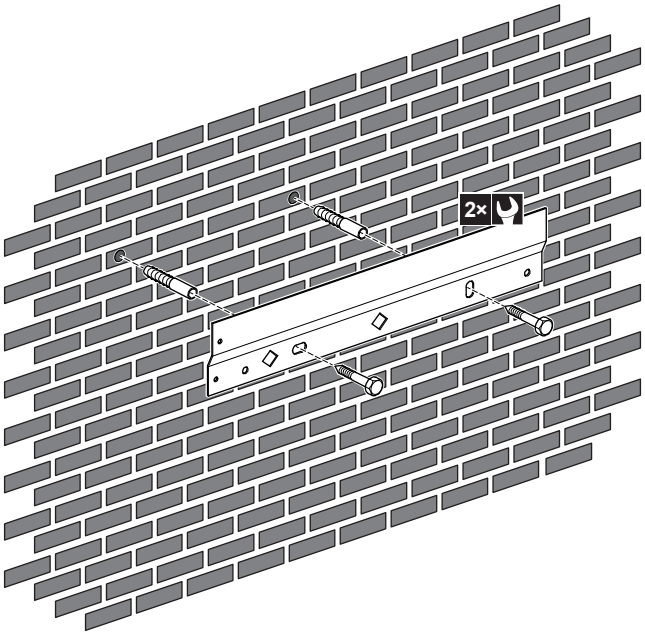
4.2 Mounting the indoor unit

4.2.1 To install the indoor unit

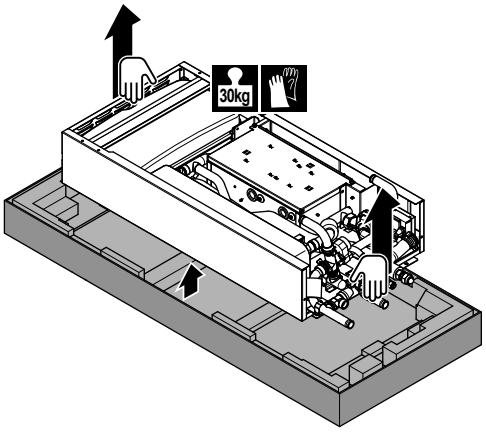
1 Put the installation pattern (see box) on the wall and follow the steps as shown below.



2 Fix the wall bracket to the wall with 2 M8 bolts.



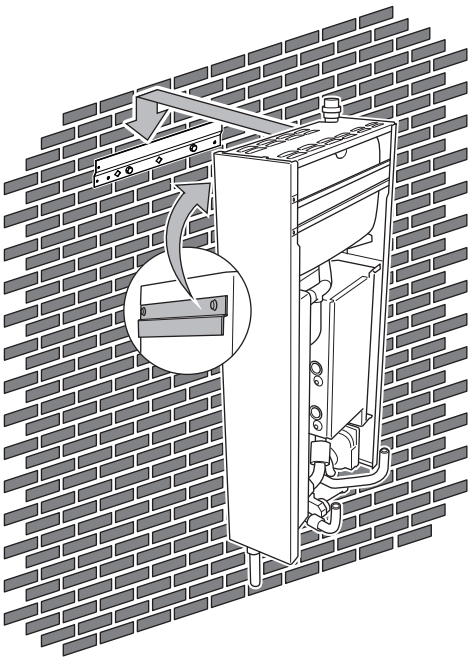
3 Lift the unit.



4 Tilt the top of the unit against the wall at the position of the wall bracket.

5 Slide the bracket on the back of the unit over the wall bracket. Make sure the unit is fixed properly. You can additionally fix the bottom side of the unit with 2 M8 bolts.

6 The unit is mounted to the wall.



4.3 Connecting refrigerant piping

See the installation manual of the outdoor unit for all guidelines, specifications and installation instructions.

4.3.1 Usage of reducers to connect the piping to the outdoor unit

For connecting the piping to the outdoor unit, you (possibly) need reducers. Please consult following table to see where you need which reducer.

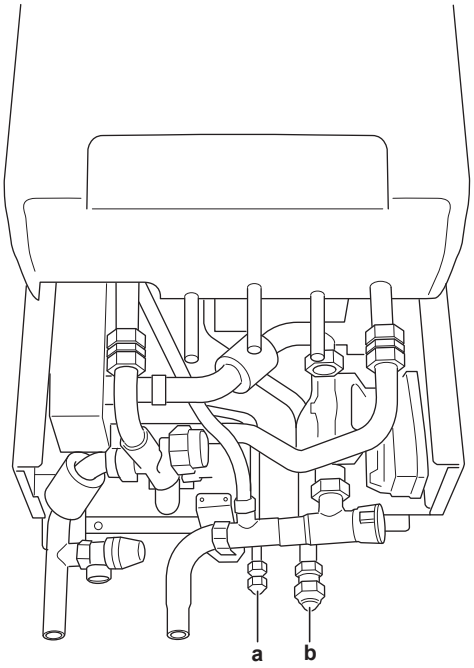
See the outdoor unit installation manual for more information.

Port	3MXM52 3MXM68	4MXM68	4MXM80	5MXM90
A	X	X	X	X
B	CHYHBH05[(a)]	X	X	X
C	CHYHBH05[(a)]	CHYHBH05[(a)]	CHYHBH05 CHYHBH08	X
D	—	CHYHBH05[(a)]	CHYHBH05 CHYHBH08	CHYHBH05 CHYHBH08
E	—	—	—	CHYHBH05 CHYHBH08

X Connection of CHYHBH05 or CHYHBH08 is NOT allowed.
— Connection of CHYHBH05 or CHYHBH08 is NOT possible.
(a) Use the reducer accessory set from the accessory bag delivered with the indoor unit.

4.3.2 To connect the refrigerant piping to the indoor unit

1 Connect the liquid stop valve from the outdoor unit to the refrigerant liquid connection of the indoor unit.



a Refrigerant liquid connection
b Refrigerant gas connection

2 Connect the gas stop valve from the outdoor unit to the refrigerant gas connection of the indoor unit.

CHYHBH05+08	
Liquid piping	Ø6.4 mm (1/4")
Gas piping	Ø15.9 mm (5/8")

4.4 Connecting water piping

4.4.1 Connecting the water piping of the indoor unit

To connect the water piping for space heating

NOTICE

In case of old heating installations, it is recommended to use a dirt separator. Dirt or sediment from the heating installation can damage the unit and reduce its lifetime.

NOTICE

Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit.

NOTICE

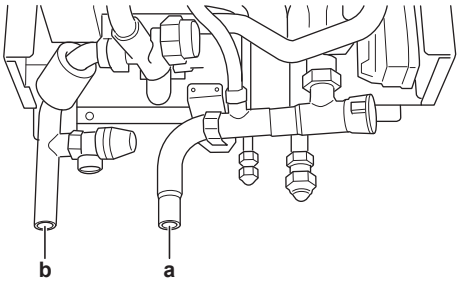
- It is recommended to install shut-off valves to space heating in and space heating out connections. Shut-off valves are field supplied. They allow service to the unit without draining the whole system.
- Foresee a drain/fill point to drain or fill the space heating circuit

NOTICE

Do NOT install valves to shut down the entire emitter system (radiators, floor heating loops, fan coil units, ...) instantly if this can result in an immediate short circuit of the water flow between the outlet and the inlet of the unit (for example via a bypass valve). This may trigger an error.

1 Connect the water inlet connection (Ø22 mm).

2 Connect the water outlet connection (Ø22 mm).



a Water inlet
b Water outlet

3 In case of connection with the optional domestic hot water tank, see the installation manual of the domestic hot water tank.

NOTICE

Install air purge valves at all local high points.

NOTICE

In case an optional domestic hot water tank is installed: A pressure relief valve (field supply) with an opening pressure of maximum 10 bar (= 1 MPa) must be installed on the domestic cold water inlet connection in accordance with the applicable legislation.

4.4.2 To fill the space heating circuit

Before filling the space heating circuit, the gas boiler MUST be installed.

1 Flush the installation thoroughly to clean the circuit.

2 Connect the water supply hose to the drain point (field supply).

3 Power up the gas boiler to see the pressure indication on the boiler display.

4 Make sure that the air purge valves of the gas boiler and the heat pump module are open (at least 2 turns).

5 Fill the circuit with water until the boiler display indicates a pressure of ±2 bar (with a minimum of 0.5 bar).

6 Purge air from the water circuit as much as possible.

7 Disconnect the water supply hose from the drain point.

NOTICE

- Air in the water circuit can cause malfunctioning. During filling, it may not be possible to remove all the air from the circuit. Remaining air will be removed through the automatic air purge valves during the initial operating hours of the system. Additional filling with water afterwards may be required.
- To purge the system, use the special function as described in the chapter "6 Commissioning" [▶ 20]. This function should be used to purge the heat exchanger coil of the domestic hot water tank.

4.4.3 To fill the domestic hot water tank

See the installation manual of the domestic hot water tank.

4.4.4 To insulate the water piping

The piping in the complete water circuit MUST be insulated to prevent reduction of the heating capacity.

If the temperature is higher than 30°C and the humidity is higher than RH 80%, the thickness of the insulation materials should be at least 20 mm to prevent condensation on the surface of the insulation.

4.5 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

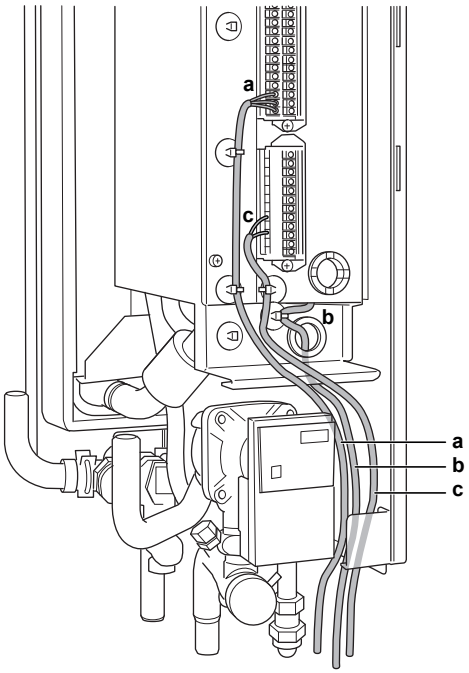
ALWAYS use multicore cable for power supply cables.

4.5.1 To connect the electrical wiring to the indoor unit

It is recommended to install all electrical wiring to the hydro box before installing the boiler.

1 Wiring should enter the unit from the bottom.

2 Routing of the wiring inside the unit should be as follows:



INFORMATION

When installing field supply or option cables, foresee sufficient cable length. This will make it possible to remove/ reposition the switch box and gain access to other components during service.

Routing	Possible cables (depending on unit type and installed options)
a	▪ Interconnection cable between indoor and outdoor unit ▪ Heat pump convector (option) ▪ Room thermostat (option) ▪ 3-way valve (option in case of tank) ▪ Shut-off valve (field supply) ▪ Domestic hot water pump (field supply)
b	▪ Interconnection cable between indoor unit and gas boiler (see boiler manual for connection instructions)
c	▪ Outdoor ambient temperature sensor (option) ▪ User interface ▪ Indoor ambient temperature sensor (option) ▪ Safety thermostat (field supply)

3 Fix the cable with cable ties to the cable tie mountings to ensure strain relief and to make sure that it does NOT come in contact with the piping and sharp edges.

CAUTION

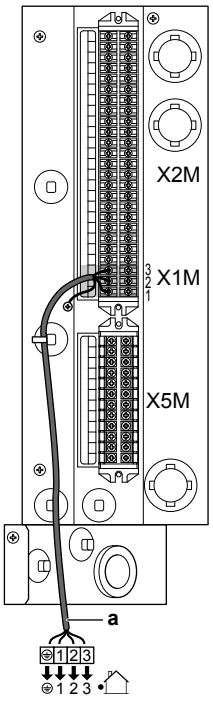
Do NOT push or place redundant cable length in the unit.

NOTICE

More technical specifications of the different connections are indicated on the inside of the indoor unit.

4.5.2 To connect the main power supply of the indoor unit

1 Connect the main power supply.

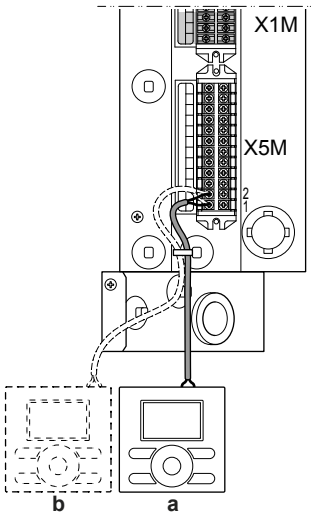
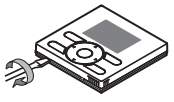


a Interconnection cable (=main power supply)

2 Fix the cable with cable ties to the cable tie mountings.

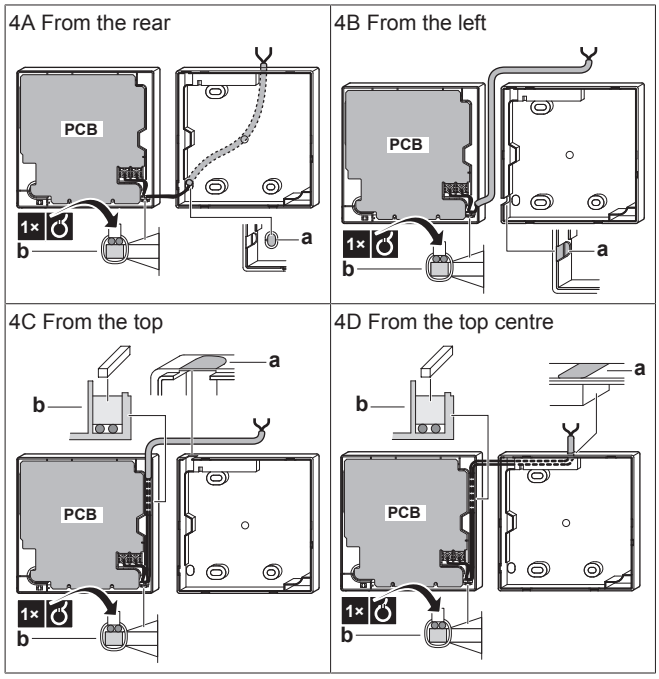
4.5.3 To connect the user interface

- If you use 1 user interface, you can install it at the indoor unit (for control close to the indoor unit), or in the room (when used as room thermostat).
- If you use 2 user interfaces, you can install 1 user interface at the indoor unit (for control close to the indoor unit) + 1 user interface in the room (used as room thermostat).

#	Action
1	Connect the user interface cable to the indoor unit. Fix the cable with cable ties to the cable tie mountings.  **a** Main user interface[(a)] **b** Optional user interface
2	Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate. The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it. 
3	Fix the wallplate of the user interface to the wall.
4	Connect as shown in 4A, 4B, 4C or 4D.

#	Action
5	Reinstall the faceplate onto the wallplate. Be careful NOT to pinch the wiring when attaching the frontplate to the unit.

(a) The main user interface is required for operation, but has to be ordered separately (mandatory option).



a Notch this part for the wiring to pass through with nippers etc.

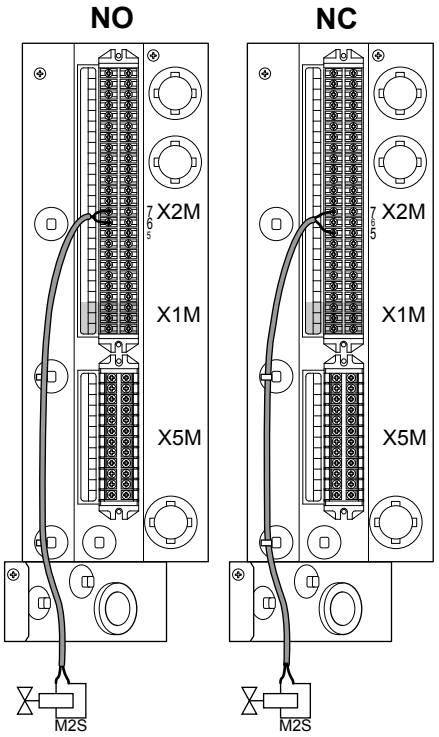
b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

4.5.4 To connect the shut-off valve

1 Connect the valve control cable to the appropriate terminals as shown in the illustration below.

NOTICE

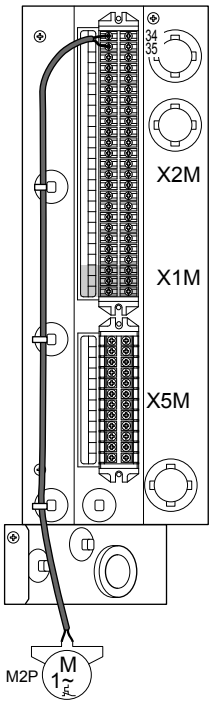
Wiring is different for a NC (normally closed) valve and a NO (normally open) valve.



2 Fix the cable with cable ties to the cable tie mountings.

4.5.5 To connect the domestic hot water pump

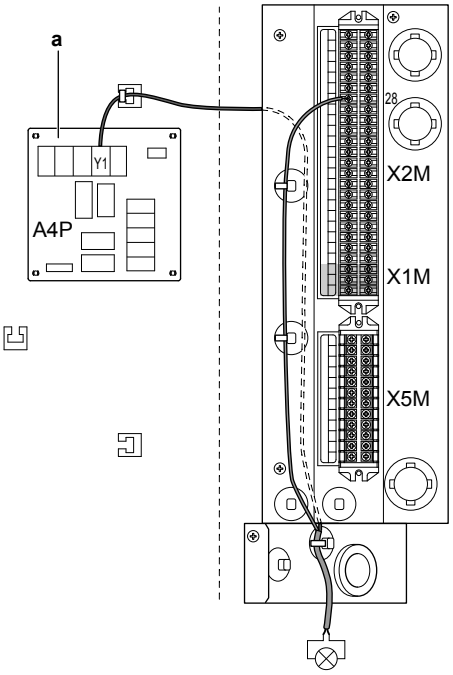
1 Connect the domestic hot water pump cable to the appropriate terminals as shown in the illustration below.



2 Fix the cable with cable ties to the cable tie mountings.

4.5.6 To connect the alarm output

1 Connect the alarm output cable to the appropriate terminals as shown in the illustration below.

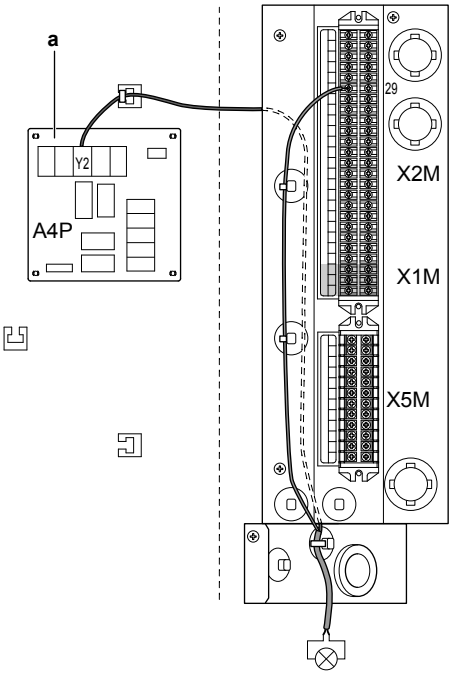


a Installation of EKRP1HBAA is required.

2 Fix the cable with cable ties to the cable tie mountings.

4.5.7 To connect the space heating ON/OFF output

1 Connect the space heating ON/OFF output cable to the appropriate terminals as shown in the illustration below.

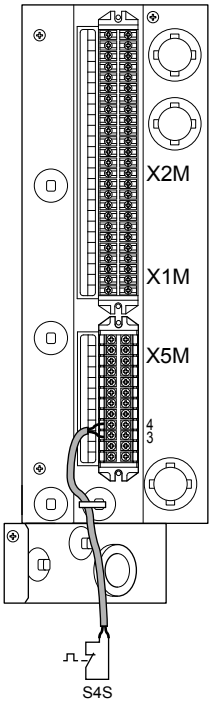


a Installation of EKRP1HBAA is required.

2 Fix the cable with cable ties to the cable tie mountings.

4.5.8 To connect the safety thermostat (normally closed contact)

1 Connect the safety thermostat (normally closed) cable to the appropriate terminals as shown in the illustration below.



2 Fix the cable with cable ties to the cable tie mountings.

NOTICE

Make sure to select and install the safety thermostat according to the applicable legislation.

In any case, to prevent unnecessary tripping of the safety thermostat, we recommend the following:

- The safety thermostat is automatically resettable.
- The safety thermostat has a maximum temperature variation rate of 2°C/min.
- There is a minimum distance of 2 m between the safety thermostat and the motorized 3-way valve delivered with the domestic hot water tank.
- The safety thermostat setpoint is at least 15°C greater than the maximum leaving water temperature setpoint.

INFORMATION

ALWAYS configure the safety thermostat after it is installed. Without configuration, the unit will ignore the safety thermostat contact.

4.6 Finishing the indoor unit installation

4.6.1 To close the indoor unit

1 Close the switch box.

2 Mount the side plate to the unit.

3 Mount the top plate.

NOTICE

When closing the indoor unit cover, make sure that the tightening torque does NOT exceed 4.1 N•m.

Before doing the configuration of the heat pump module, the gas boiler MUST be installed correctly.

5 Configuration

INFORMATION

The purpose of hybrid for multi indoor unit in combination with multi outdoor unit is for heating only (space heating and DHW (by boiler only)). The target use of the direct expansion indoor unit (DX) in such a system is for cooling only. A combination of hybrid and DX, both in heating operation is NOT the main objective of such a system and hence, the heating comfort or continuous operation of the DX cannot be guaranteed over the complete operation range.

INFORMATION

After direct expansion units (DX) have operated in cooling mode, the hybrid for multi indoor unit will not operate by heat pump for 72 hours. During this time, the gas boiler will take over the hybrid operation.

5.1 Indoor unit

5.1.1 Overview: Configuration

This chapter describes what you have to do and know to configure the system after it is installed.

NOTICE

This chapter explains only the basic configuration. For more detailed explanation and background information, see the installer reference guide.

Why

If you do NOT configure the system correctly, it might NOT work as expected. The configuration influences the following:

- The calculations of the software
- What you can see on and do with the user interface

How

You can configure the system via the user interface.

- **First time – Quick wizard.** When you turn ON the user interface for the first time (via the indoor unit), a quick wizard starts to help you configure the system.
- **Afterwards.** If necessary, you can make changes to the configuration afterwards.

INFORMATION

When the installer settings are changed, the user interface will request to confirm. When confirmed, the screen will shortly turn OFF and "busy" will be displayed for several seconds.

Accessing settings – Legend for tables

You can access the installer settings using two different methods. However, NOT all settings are accessible via both methods. If so, the corresponding table columns in this chapter are set to N/A (not applicable).

Method	Column in tables
Accessing settings via the breadcrumb in the **menu structure**.	**#** For example: [A.2.1.7]
Accessing settings via the code in the **overview settings**.	**Code** For example: [C-07]

See also:

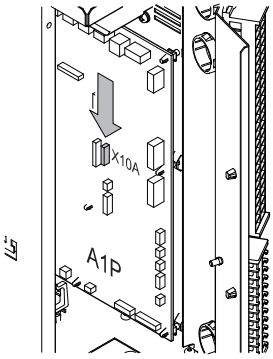
- "To access the installer settings" [▶ 13]
- "5.1.3 Menu structure: Overview installer settings" [▶ 19]

To connect the PC cable to the switch box

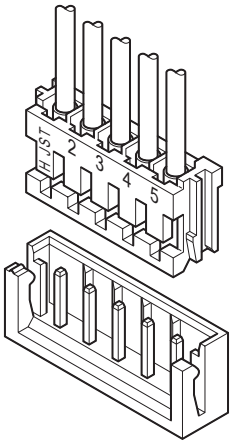
Prerequisite: The EKPCCAB4 kit is required.

1 Connect the USB connector of the cable to your PC.

2 Connect the plug of the cable to X10A on A1P of the switch box of the indoor unit.



3 Pay special attention to the position of the plug!



To access the most used commands

To access the installer settings

1 Set the user permission level to `Installer`.

2 Go to [A]: ☰ > `Installer settings`.

To access the overview settings

1 Set the user permission level to `Installer`.

2 Go to [A.8]: ☰ > `Installer settings` > `Overview settings`.

To set the user permission level to Installer

Prerequisite: Your user permission level is `Adv. end user`.

1 Go to [6.4]: ☰ > `Information` > `User permission level`.

2 Press ☰ for more than 4 seconds.

Result: Your user permission level is now `Installer`. The home pages display 🔧.

INFORMATION

The `Installer` permission level switches automatically back to `End user` in the following cases:

- If you press ⓘ again for more than 4 seconds, or
- If you do NOT press any button for more than 1 hour

To set the user permission level to Advanced end user

1 Go to the main menu or any of its submenus: ☰.

2 Press ⓘ for more than 4 seconds.

Result: Your user permission level is now `Adv. end user`. The user interface displays additional information and a "+" is added to the menu title. The user permission level stays in `Adv. end user` until manually set otherwise.

To set the user permission level to End user

1 Press ⓘ for more than 4 seconds.

Result: Your user permission level is now `End user`. The user interface displays the default home page.

To modify an overview setting

Example: Modify [1-01] from 15 to 20.

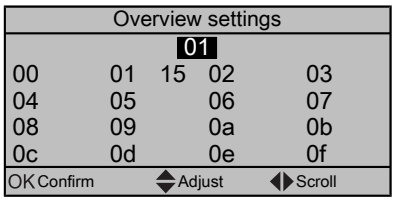
1 Go to [A.8]: ☰ > `Installer settings` > `Overview settings`.

2 Go to the corresponding screen of the first part of the setting (in this example [**1**-01]) by using the ▲ and ▼ button.

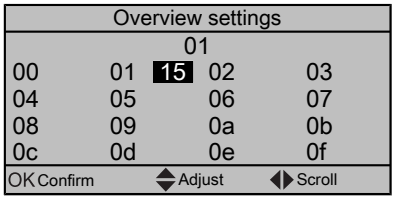
INFORMATION

An additional 0-digit is added to the first part of the setting when you access the codes in the overview settings.

Example: [1-01]: "1" will result in "**0**1".

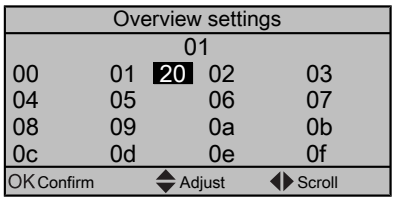


3 Go to the corresponding second part of the setting (in this example [1-**01**]) by using the ◀ and ▶ button.



Result: The value to be modified is now highlighted.

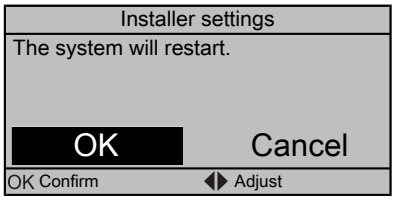
4 Modify the value by using the ▲ and ▼ button.



5 Repeat previous steps if you have to modify other settings.

6 Push OK to confirm the modification of the parameter.

7 At installer settings menu, press OK to confirm the settings.



Result: The system will restart.

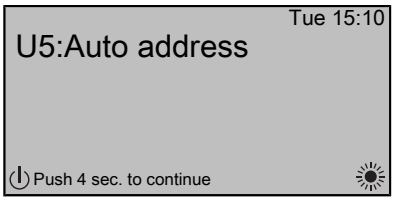
To copy the system settings from the first to the second user interface

If a second user interface is connected, the installer must first proceed below instructions for the proper configuration of the 2 user interfaces.

This procedure offers you also the possibility to copy the language set from one user interface to the other one: e.g. from EKRUCBL2 to EKRUCBL1.

1 Turn on the unit.

Result: When turned on for the first time, both user interfaces display:



2 Push ⏻ for 4 seconds on the user interface on which you want to proceed to the quick wizard.

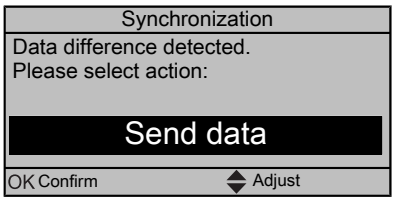
Result: This user interface is now the main user interface.

INFORMATION

While using the quick wizard on the main user interface, the second user interface displays `Busy` and you cannot interact with it.

3 On the display, check if there is a data difference between both user interfaces.

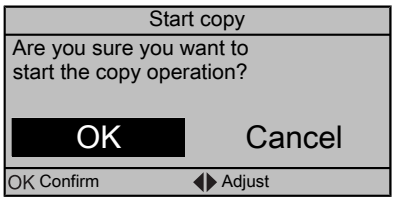
Result: For proper operation of the system, the local data on both user interfaces must be the same. If they contain different data, both user interfaces will display:



4 To make the data equal on both user interfaces, select the required action:

- `Send data`: the user interface you are operating contains the correct data. Copy this data to the other user interface.
- `Receive data`: the user interface you are operating does NOT contain the correct data. Copy the data of the other user interface to this user interface.

5 Confirm to proceed.



6 Push OK to confirm the displayed selection of data.

Result: All data (languages, schedules etc.) will be copied from the selected source user interface to the other one. When done, the system is ready to be operated via both user interfaces.

INFORMATION

- As long as data is being copied, you cannot operate the user interfaces.
- Copying data can take up to 90 minutes.
- It is recommended to change installer settings, or the configuration of the unit, on the main user interface. If not, it can take up to 5 minutes before these changes are visible in the menu structure of the main user interface.

To copy the language set from the first to the second user interface

See "To copy the system settings from the first to the second user interface" [▶ 14].

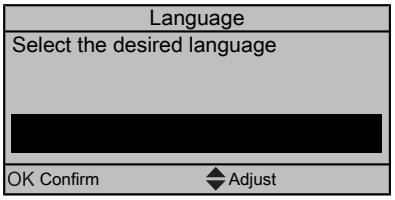
Quick wizard: Set the system layout after first power ON

After first power ON of the system, a quick wizard guides you through the initial configuration of the following system settings:

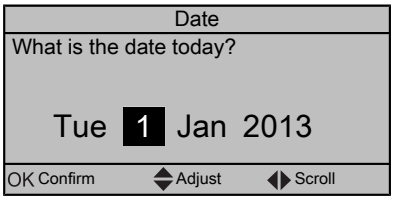
- language
- date
- time
- system layout

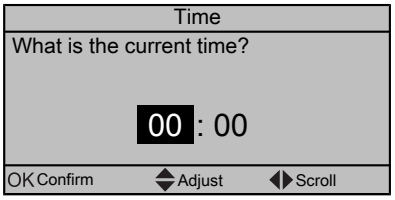
After you confirmed the system layout, you can proceed with the installation and commissioning of the system.

1 At power ON and as long as the system layout was not confirmed yet, select your preferred language.

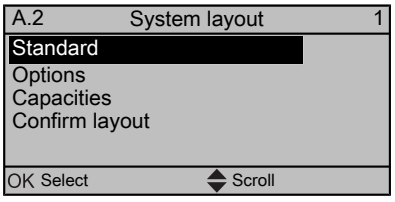


2 Set the current date and time.

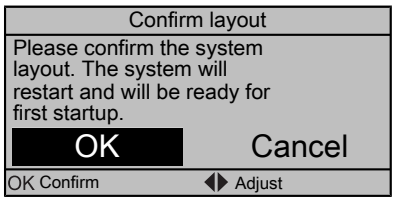




3 Set the system layout settings: `Standard`, `Options`, `Capacities`. For more details, see "5.1.2 Basic configuration" [▶ 15].



4 After configuration, select `Confirm layout` and press OK.



Result: The user interface reinitializes.

5 Proceed with the configuration of the system. When done, confirm the configuration settings.

Result: The screen shortly turns OFF and `Busy` is displayed for several seconds.

5.1.2 Basic configuration

Quick wizard: Language / time and date

#	Code	Description
[A.1]	N/A	Language
[1]	N/A	Time and date

Quick wizard: Standard

Space heating settings

#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: ▪ 0 (`LWT control`): Not applicable. ▪ 1 (`Ext RT control`): Unit operation is decided by the external thermostat. ▪ 2 (`RT control`): Unit operation is decided based on the ambient temperature of the user interface.
[A.2.1.B]	N/A	Only if there are 2 user interfaces: User interface location: ▪ `At unit` ▪ `In room`
[A.2.1.8]	[7-02]	Number of water temperature zones: ▪ 0 (`1 LWT zone`): Main ▪ 1 (`2 LWT zones`): Main + additional
[A.2.1.9]	[F-0D]	Pump operation: ▪ 0 (`Continuous`): Not applicable. ▪ 1 (`Sample`): Not applicable. ▪ 2 (`Request`): Pump operation based on request. **Example:** Using a room thermostat and thermostat creates thermo ON/OFF condition.

Quick wizard: Options

Domestic hot water settings

#	Code	Description
[A.2.2.1]	[E-05]	Domestic hot water preparation: ▪ 0 (`No`): NOT possible ▪ 1 (`Yes`)(default): Possible
[A.2.2.2]	[E-06]	Domestic hot water production: ▪ 0 (`Type 1`): by boiler ▪ 1 (`Type 2`): by tank **Note:** For Switzerland, setting MUST be "1".

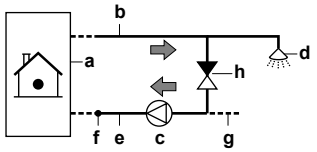
#	Code	Description
[A.2.2.3]	[E-07]	Domestic hot water tank: ▪ 4 (Type 5). EKHWP. ▪ 6 (Type 7) Third-party tank. Range: 0~6.
[A.2.2.A]	[D-02]	Domestic hot water pump (not applicable for Switzerland): In case of [E-06]=0 ▪ 0 (No)(default): NOT installed ▪ 1 (Secondary rtrn): Installed for instant hot water In case of [E-06]=1 ▪ 0 (No)(default): NOT installed ▪ 1 (Secondary rtrn): Installed for instant hot water ▪ 2 (Disinf. shunt): Installed for disinfection See also illustrations below.

In case of [E-06]=0

INFORMATION

Not applicable for Switzerland.

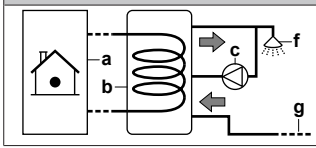
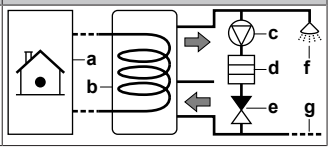
Domestic hot water pump installed for instant hot water



a Indoor unit
b Hot water connection on boiler
c Domestic hot water pump
d Shower
e Inlet on boiler
f Recirculation thermistor (EKTH2)
g Water supply
h Non-return valve

In case of [E-06]=1

Domestic hot water pump installed for…

Instant hot water	Disinfection
	

a Indoor unit
b Tank
c Domestic hot water pump
d Heater element
e Non-return valve
f Shower
g Cold water

Thermostats and external sensors

#	Code	Description
[A.2.2.4]	[C-05]	External room thermostat for the **main** zone: ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. No separation between heating demand. ▪ 2 (H/C request): When the used external room thermostat can send a separate heating thermo ON/OFF condition.
[A.2.2.5]	[C-06]	External room thermostat for the **additional** zone: ▪ 0: N/A ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. No separation between heating demand. ▪ 2 (H/C request): When the used external room thermostat can send a separate heating thermo ON/OFF condition.
[A.2.2.B]	[C-08]	External sensor: ▪ 0 (No): NOT installed. ▪ 1 (Outdoor sensor): Connected to PCB measuring the outdoor temperature. ▪ 2 (Room sensor): Connected to PCB measuring the indoor temperature.

#	Code	Description
[A.2.2.6.2]	[D-07]	Solar pump station kit: ▪ 0 (No): NOT installed ▪ 1 (Yes): Installed
[A.2.2.6.3]	[C-09]	Alarm output on optional EKRP1HBAA PCB: ▪ 0 (Normally open): The alarm output will be powered when an alarm occurs. By setting this value, a distinction is made between the detection of an alarm, and the detection of a power failure. ▪ 1 (Normally closed): The alarm output will NOT be powered when an alarm occurs. See also table below (Alarm output logic).

Alarm output logic

[C-09]	Alarm	No alarm	No power supply to unit
0 (default)	Closed output	Open output	Open output
1	Open output	Closed output	

Savings mode

The user can choose whether switching between operation modes is either economically or ecologically optimised. Set to Economical, the system will in all operating conditions select the energy source (gas or electricity) based on energy prices, resulting in a

minimisation of energy costs. Set to `Ecological`, the heat source will be selected based on ecological parameters, resulting in a minimisation of primary energy consumption.

#	Code	Description
[A.6.7]	[7-04]	Defines whether switching between operation modes is either economically or ecologically optimised. ▪ 0 (`Economical`)(default): reduction of energy costs ▪ 1 (`Ecological`): reduction of primary energy consumption, but not necessarily energy costs

Primary energy factor

The primary energy factor indicates how many units of primary energy (natural gas, crude oil, or other fossil fuels, prior to undergoing any human-made conversions or transformations) are needed to obtain 1 unit of a certain (secondary) energy source, such as electricity. The primary energy factor for natural gas is 1. Assuming an average electricity production efficiency (including transportation losses) of 40%, the primary energy factor for electricity equals 2.5 (=1/0.40). The primary energy factor allows you to compare 2 different energy sources. In this case, the primary energy use of the heat pump is compared to the natural gas use of the gas boiler.

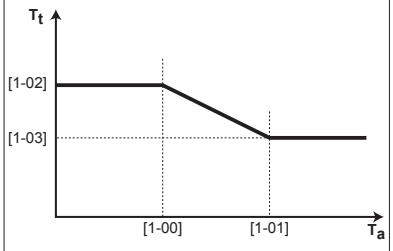
#	Code	Description
N/A	[7-03]	Compares the primary energy use of the heat pump with that of the boiler. Range: 0~6, step: 0.1 (default: 2.5)

INFORMATION

- The primary energy factor can always be set, but is only used in case the savings mode is set to `Ecological`.
- To set electricity price values, do NOT use overview settings. Set them in the menu structure instead ([7.4.5.1], [7.4.5.2], and [7.4.5.3]). For more information on how to set the energy prices, see the operation manual and the user reference guide.

Space heating control

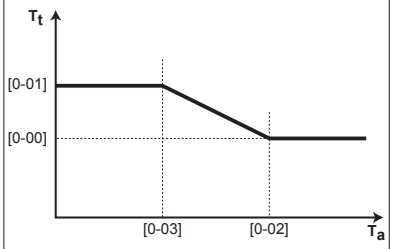
Leaving water temperature: Main zone

#	Code	Description
[A.3.1.1.1]	N/A	Set point mode: ▪ 0 (`Fixed`): Absolute ▪ 1 (`Weather dep.`): Weather-dependent
[7.7.1.1]	[1-00] [1-01] [1-02] [1-03]	Weather-dependent curve (heating):  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature

INFORMATION

In order to optimise comfort as well as running costs, it is recommended to choose weather-dependent setpoint operation. Set the settings carefully; they have significant influence on heat pump as well as boiler operation. Too high leaving water temperature can result in constant boiler operation.

Leaving water temperature: Additional zone

#	Code	Description
[A.3.1.2.1]	N/A	Set point mode: ▪ 0 (`Fixed`): Absolute ▪ 1 (`Weather dep.`): Weather-dependent
[7.7.2.1]	[0-00] [0-01] [0-02] [0-03]	Weather-dependent curve (heating):  ▪ T_t: Target leaving water temperature (additional) ▪ T_a: Outdoor temperature

Pump control: Flow target

#	Code	Description
N/A	[8-0B]	Target flow rate during heat pump operation.
N/A	[8-0C]	Target flow rate during hybrid operation.
N/A	[8-0D]	Target flow rate during boiler operation.

INFORMATION

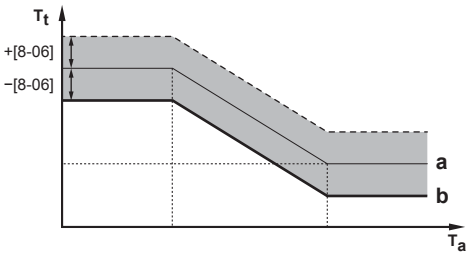
Changing these settings can result in discomfort. Refer to the installer reference guide for more information.

Leaving water temperature: Modulation

#	Code	Description
[A.3.1.1.5]	[8-05]	Leaving water temperature modulation: ▪ 0 (`No`): Disabled ▪ 1 (`Yes`): Enabled. The leaving water temperature is calculated according to the difference between desired and actual room temperature. This allows better matching of the heat pump capacity to actual required capacity and results in less start/stop cycles of the heat pump and more economic operation.
N/A	[8-06]	Leaving water temperature maximum modulation: 0°C~10°C (default: 5°C) Requires modulation to be enabled. This is the value by which the desired leaving water temperature is increased or lowered.

INFORMATION

When leaving water temperature modulation is enabled, the weather-dependent curve needs to be set to a higher position than [8-06] plus the minimum leaving water temperature setpoint required to reach a stable condition on the comfort setpoint for the room. To increase efficiency, modulation can lower the leaving water setpoint. By setting the weather-dependent curve to a higher position, it cannot drop below the minimum setpoint. See the illustration below.



a Weather-dependent curve
b Minimum leaving water temperature setpoint required to reach a stable condition on the comfort setpoint for the room.

Leaving water temperature: Emitter type

#	Code	Description
[A.3.1.1.7]	[9-0B]	`Emitter type`: Reaction time of the system: ▪ 0: (`Quick`) **Example:** Small water volume and fan coils. ▪ 1: (`Slow`) **Example:** Large water volume, floor heating loops. Depending on the system water volume and the heat emitters type, the heat up of a space can take longer. This setting can compensate for a slow or a quick heating system by adjusting the unit capacity during the heat up cycle.

Quick heat up function

#	Code	Description
N/A	[C-0A]	Indoor quick heat up function: ▪ 0: `OFF`. ▪ 1 (default): `On`. Only applicable in case of room thermostat control. The function will start up the gas boiler when the actual room temperature is 3°C lower than the desired room temperature. The large boiler capacity can quickly boost up the room temperature to the desired temperature. This can be useful after long periods of absence or after a breakdown of the system.

Domestic hot water control

Only applicable in case an optional domestic hot water tank is installed.

#	Code	Description
[A.4.1]	[6-0D]	Domestic hot water `Type`: ▪ 0 (`Reheat only`): Only reheat operation is allowed. ▪ 1 (`Reheat + sched.`): Same as 2, but between the scheduled heatup cycles, reheat operation is allowed. ▪ 2 (`Scheduled only`): The domestic hot water tank can ONLY be heated according to a schedule.
[A.4.5]	[6-0E]	The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperature at the hot water taps.

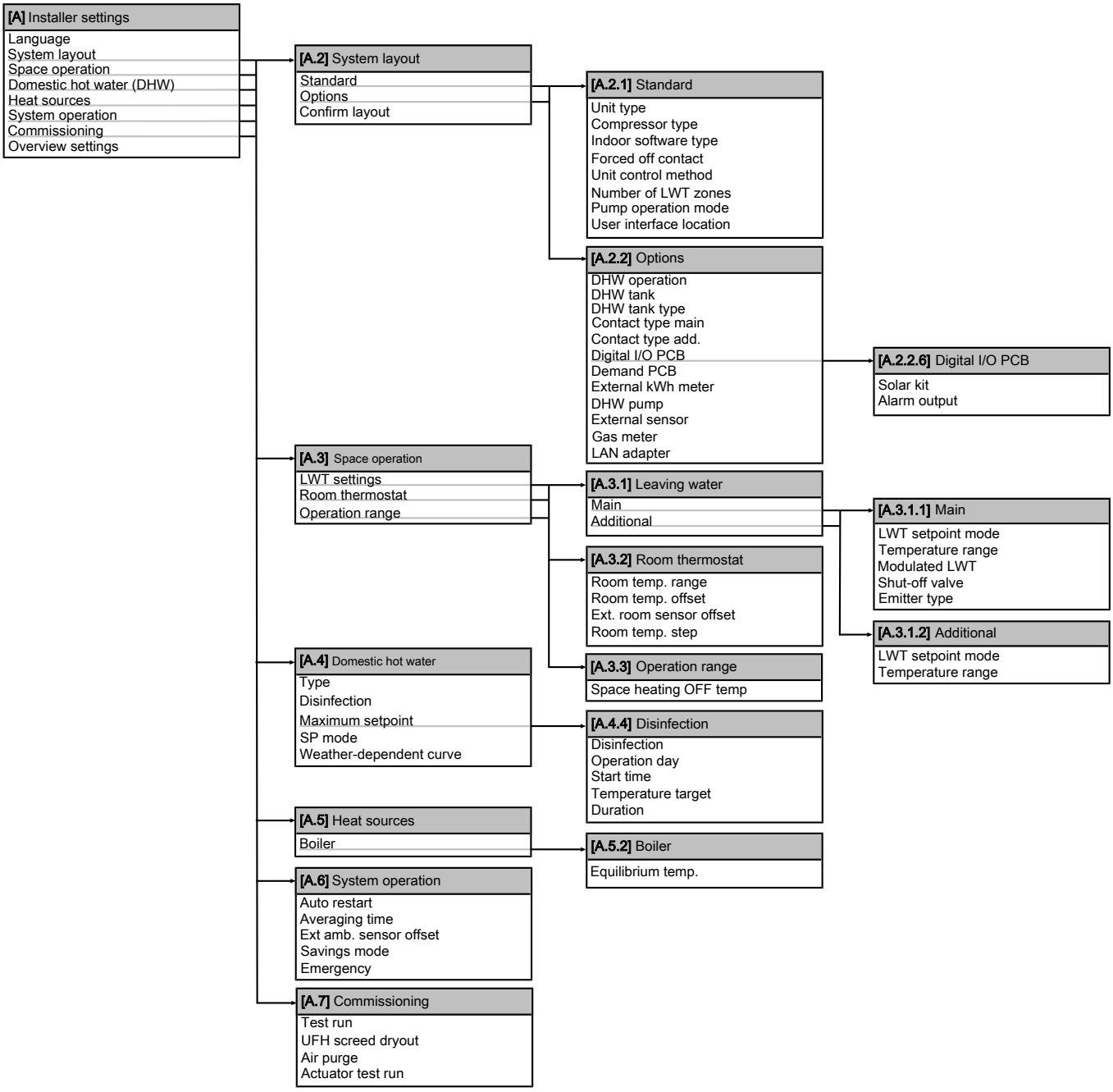
INFORMATION

If a third-party tank is present in the system ([E-07]=6), it is recommended to set [6-0D] to "0" (i.e. `Reheat only`).

Contact/helpdesk number

#	Code	Description
[6.3.2]	N/A	Number that users can call in case of problems.

5.1.3 Menu structure: Overview installer settings



INFORMATION

Depending on the selected installer settings and unit type, settings will be visible/invisible.

INFORMATION

Demand PCB settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.

INFORMATION

External kWh meter settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.

INFORMATION

Gas meter settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.

6 Commissioning

NOTICE

ALWAYS operate the unit with thermistors and/or pressure sensors/switches. If NOT, burning of the compressor might be the result.

INFORMATION

Protective functions – "Installer-on-site mode". The software is equipped with protective functions, such as room antifrost. The unit automatically runs these functions when necessary. (If the user interface home pages are off, the unit will not operate automatically.)

During installation or service this behaviour is undesired. Therefore, the protective functions can be disabled:

- **At first power-on:** The protective functions are disabled by default. After 36 h they will be automatically enabled.
- **Afterwards:** An installer can manually disable the protective functions by setting [4-0E]=1. After his work is done, he can enable the protective functions by setting [4-0E]=0.

6.1 Checklist before commissioning

After the installation of the unit, first check the items listed below. Once all checks are fulfilled, the unit must be closed. Power-up the unit after it is closed.

☐	You read the complete installation instructions, as described in the **installer reference guide**.
☐	The **indoor unit** is properly mounted.
☐	The **outdoor unit** is properly mounted.
☐	The **gas boiler** is properly mounted.
☐	The following **field wiring** has been carried out according to this document and the applicable legislation: ▪ Between the local supply panel and the outdoor unit ▪ Between indoor unit and outdoor unit ▪ Between the local supply panel and the indoor unit ▪ Between the indoor unit and the valves (if applicable) ▪ Between the indoor unit and the room thermostat (if applicable) ▪ Between the indoor unit and the domestic hot water tank (if applicable) ▪ Between the gas boiler and the local supply panel (only applicable in case of hybrid system)
☐	The **communication cable** between the gas boiler and the indoor unit is properly mounted.
☐	The system is properly **earthed** and the earth terminals are tightened.
☐	The **fuses** or locally installed protection devices are installed according to this document, and have NOT been bypassed.
☐	The **power supply voltage** matches the voltage on the identification label of the unit.
☐	There are NO **loose connections** or damaged electrical components in the switch box.
☐	There are NO **damaged components** or **squeezed pipes** on the inside of the indoor and outdoor units.
☐	There are NO **refrigerant leaks**.
☐	The **refrigerant pipes** (gas and liquid) are thermally insulated.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	There is NO **water leak** inside the indoor unit.
☐	There is NO **water leak** inside the gas boiler.
☐	There is NO **water leak** in the connection between the gas boiler and the indoor unit.
☐	The **shut-off valves** are properly installed and fully open (field supply).
☐	The **stop valves** (gas and liquid) on the outdoor unit are fully open.
☐	The **air purge** valve is open (at least 2 turns).
☐	The **pressure relief valve** purges water when opened. Clean water must come out.
☐	The **gas boiler** is switched ON.
☐	Setting E. is correctly set on the gas boiler. The setting must be 0.
☐	The **minimum water volume** is guaranteed in all conditions. See "To check the water volume and flow rate" in "3.2 Preparing water piping" [▸ 6].

6.2 Checklist during commissioning

The order mentioned in following commissioning checklist MUST be followed.

☐	To perform a **wiring** check.
☐	The **minimum flow rate** is guaranteed in all conditions. See "To check the water volume and flow rate" in "3.2 Preparing water piping" [▸ 6].
☐	To perform an **air purge**.
☐	To perform a **test run when the hybrid is in heating mode**.
☐	To perform an **actuator test run**.
☐	**Underfloor screed dryout function** The underfloor screed dryout function is started (if necessary).
☐	To perform a gas pressure test.
☐	To perform a test run on the **gas boiler**.
☐	To perform a test run on the **airconditioning DX unit in cooling mode.**

6.2.1 To perform a wiring error check

INFORMATION

- You only have to perform a wiring error check if you are not sure that the electrical wiring and piping is connected correctly.
- If you perform a wiring error check, the hybrid for multi indoor unit will not operate by heat pump for 72 hours. During this time, the gas boiler will take over the hybrid operation.

Prerequisite: Indoor and outdoor unit must be installed and connected.

Prerequisite: Make sure that the water temperature in the system is >25°C.

1 Heat up the water temperature in the system >25°C.

NOTICE

If the water temperature in the system is ≤25°C, the plate heat exchanger will freeze and damage occurs.

2 Proceed with the steps as described in the outdoor unit installation manual or outdoor unit installer reference guide to perform a wiring error check.

NOTICE

Make sure that the minimum required water flow in the unit is guaranteed.

6.2.2 To check the minimum flow rate

1 Confirm according to the hydraulic configuration which space heating loops can be closed due to mechanical, electronic, or other valves.

2 Close all space heating loops that can be closed (see previous step).

3 Start the pump test run operation (see "6.2.5 To perform an actuator test run" [▶ 21]).

4 Go to [6.1.8]: ☰ > `Information` > `Sensor information` > `Flow rate` to check the flow rate. During pump test run operation, the unit can operate below this minimum required flow rate.

Bypass valve foreseen?	
Yes	**No**
Modify the bypass valve setting to reach the minimum required flow rate + 2 l/min	In case the actual flow rate is below the minimum flow rate, modifications at the hydraulic configuration are required. Increase the space heating loops that can NOT be closed or install a pressure-controlled bypass valve.

Minimum required flow rate	
05+08 models	9 l/min

6.2.3 To perform an air purge

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Go to [A.7.3]: ☰ > `Installer settings` > `Commissioning` > `Air purge`.

2 Set the type.

3 Select `Start air purge` and press OK.

4 Select `OK` and press OK.

Result: The air purge starts. It stops automatically when done. To stop it manually, press ⏻, select `OK` and press OK.

Air purging heat emitters or collectors

We recommend to purge air with the unit's air purge function (see above). However, if you purge air from the heat emitters or collectors, mind the following:

WARNING

Air purging heat emitters or collectors. Before you purge air from heat emitters or collectors, check if an error or ⓘ is displayed on the home pages of the user interface.

- If not, you can purge air immediately.
- If yes, make sure that the room where you want to purge air is sufficiently ventilated. **Reason:** Refrigerant might leak into the water circuit, and subsequently into the room when you purge air from the heat emitters or collectors.

6.2.4 To perform a test run

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Set the user permission level to Installer. See "To set the user permission level to Installer" [▶ 13].

2 Go to [A.7.1]: ☰ > `Installer settings` > `Commissioning` > `Test run`.

3 Select a test and press OK. **Example:** `Heating`.

4 Select `OK` and press OK.

Result: The test run starts. It stops automatically when done (±30 min). To stop it manually, press ⏻, select `OK` and press OK.

INFORMATION

If 2 user interfaces are present, you can start a test run from both user interfaces.

- The user interface used to start the test run displays a status screen.
- The other user interface displays a "busy" screen. You cannot use the user interface as long as the "busy" screen is shown.

6.2.5 To perform an actuator test run

Perform an actuator test run to confirm the operation of the different actuators. For example, when you select `Pump`, a test run of the pump will start.

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Set the user permission level to Installer. See "To set the user permission level to Installer" [▶ 13].

2 Make sure the room temperature control, the leaving water temperature control and the domestic hot water control are turned OFF via the user interface.

3 Go to [A.7.4]: ☰ > `Installer settings` > `Commissioning` > `Actuator test run`.

4 Select an actuator and press OK. **Example:** `Pump`.

5 Select `OK` and press OK.

Result: The actuator test run starts. It automatically stops when finished. To stop it manually, press ⏻, select `OK` and press OK.

Possible actuator test runs

- Pump test

INFORMATION

Make sure that all air is purged before executing the test run. Also avoid disturbances in the water circuit during the test run.

- Solar pump test
- Shut-off valve test

- 3-way valve test
- Alarm output test
- Heating signal test
- Quick heat-up test
- DHW pump test
- Gas boiler test
- Bypass valve test

INFORMATION

The setpoint during a boiler test run is 40°C. Keep in mind the 5°C overshoot that is possible during boiler operation, especially in combination with floor heating loops.

6.2.6 To perform an underfloor heating screed dryout

Prerequisite: Make sure there is only 1 user interface connected to your system to perform an underfloor heating screed dryout.

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Go to [A.7.2]: ☰ > `Installer settings` > `Commissioning` > `UFH screed dryout`.

2 Set a dryout program.

3 Select `Start dryout` and press OK.

4 Select `OK` and press OK.

Result: The underfloor heating screed dryout starts. It stops automatically when done. To stop it manually, press ⏻, select `OK` and press OK.

INFORMATION

In case no outdoor unit is installed, the user interface will ask if the gas boiler can take over the entire load. After allowing this, restart the screed dryout program to make sure all actuators are operating.

NOTICE

To perform an underfloor heating screed dryout, room frost protection needs to be disabled ([2-06]=0). By default, it is enabled ([2-06]=1). However, due to the "installer-on-site" mode (see "Commissioning"), room frost protection will be automatically disabled for 36 hours after the first power-on.

If the screed dryout still needs to be performed after the first 36 hours of power-on, manually disable room frost protection by setting [2-06] to "0", and KEEP it disabled until the screed dryout has finished. Ignoring this notice will result in cracking of the screed.

NOTICE

For the underfloor heating screed dryout to be able to start, make sure the following settings are met:

- [4-00]=1
- [C-02]=0
- [D-01]=0
- [4-08]=0
- [4-01]≠1

7 Hand-over to the user

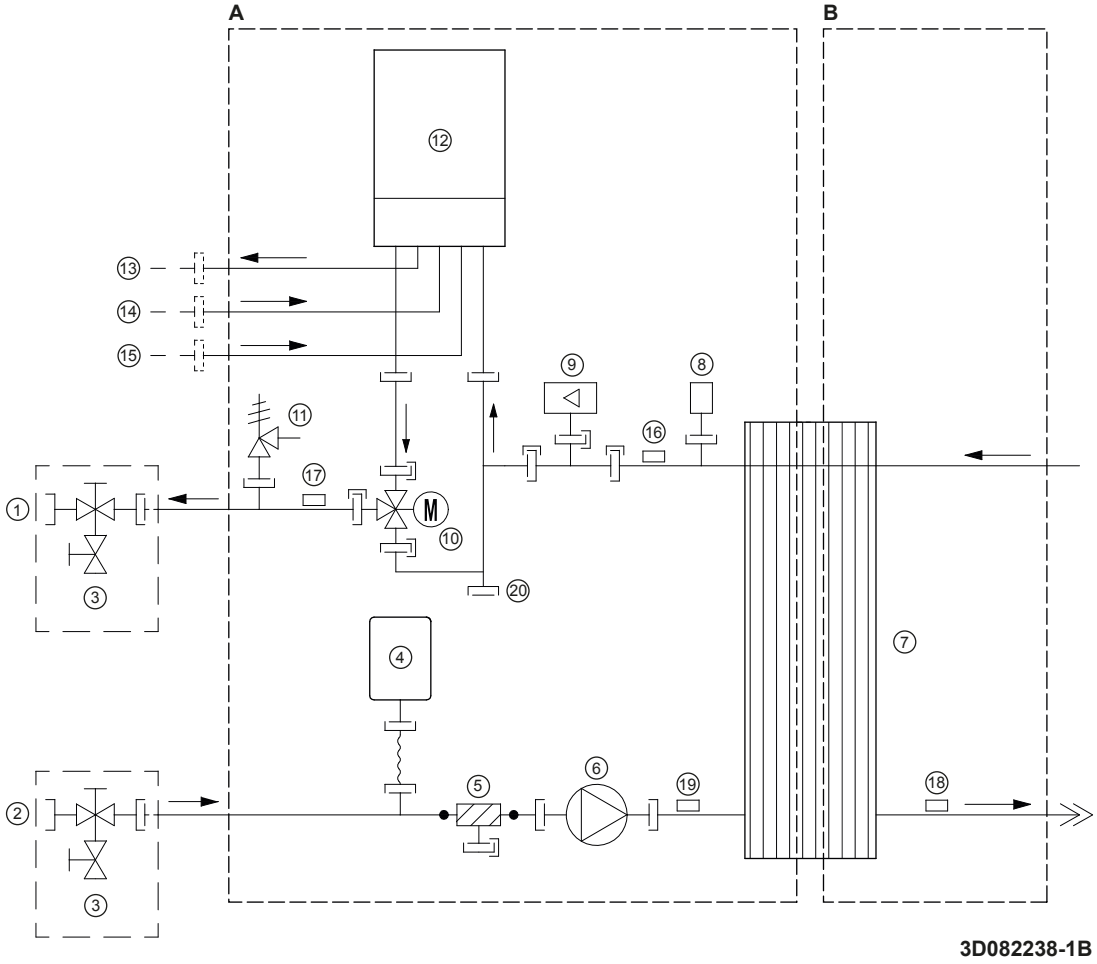
Once the test run is finished and the unit operates properly, please make sure the following is clear for the user:

- Fill in the installer setting table (in the operation manual) with the actual settings.
- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he can find the complete documentation at the URL mentioned earlier in this manual.
- Explain the user how to properly operate the system and what to do in case of problems.
- Show the user what to do for the maintenance of the unit.
- Explain the user about energy saving tips as described in the operation manual.

8 Technical data

A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible). The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

8.1 Piping diagram: Indoor unit



A Water side
B Refrigerant side
1 Space heating water IN
2 Space heating water OUT
3 Shut-off valve with drain/fill valve
4 Expansion vessel
5 Filter
6 Pump
7 Plate heat exchanger
8 Air purge
9 Flow sensor
10 3-way valve
11 Safety valve
12 Gas boiler
13 Domestic hot water: hot water OUT
14 Gas pipe
15 Domestic hot water: hot water IN
16 R1T – Plate heat exchanger outlet water thermistor
17 R2T – Outlet water thermistor
18 R3T – Heat exchanger liquid pipe thermistor
19 R4T – Inlet water thermistor
20 Screw connection
Screw connection
Quick coupling
Brazed connection
Flare connection

8.2 Wiring diagram: Indoor unit

See the internal wiring diagram supplied with the unit (on the inside of the indoor unit switch box cover). The abbreviations used are listed below.

Notes to go through before starting the unit

English	Translation
Notes to go through before starting the unit	Notes to go through before starting the unit
X1M	Indoor/outdoor communication

English	Translation
X2M	Field wiring terminal for AC
X5M	Field wiring terminal for DC
—·—·—·—	Earth wiring

English	Translation
– – – – – – –	Field supply
—> **/12.2	Connection ** continues on page 12 column 2
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB
User installed options	User installed options
☐ Domestic hot water tank	☐ Domestic hot water tank
☐ Domestic hot water tank with solar connection	☐ Domestic hot water tank with solar connection
☐ Remote user interface	☐ Remote user interface
☐ Ext. indoor thermistor	☐ External indoor thermistor
☐ Ext outdoor thermistor	☐ External outdoor thermistor
☐ Digital I/O PCB	☐ Digital I/O PCB
☐ Instant DHW recirculation	☐ Instant domestic hot water recirculation
Main LWT	Main leaving water temperature
☐ On/OFF thermostat (wired)	☐ On/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ On/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector
Add LWT	Additional leaving water temperature
☐ On/OFF thermostat (wired)	☐ On/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ On/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector

Position in switch box

English	Translation
Position in switch box	Position in switch box

Legend

A1P		Main PCB (hydrobox)
A2P		User interface PCB
A3P	*	On/OFF thermostat
A3P	*	Heat pump convector
A3P	*	Solar pump station PCB
A4P	*	Digital I/O PCB
A4P	*	Receiver PCB (Wireless On/OFF thermostat, PC=power circuit)
B1L		Flow sensor
DS1 (A8P)	*	DIP switch
F1U, F2U	*	Fuse 5 A 250 V for digital I/O PCB (A4P)
FU1		Fuse T 5 A 250 V for main PCB (A1P)
K*R		Relay on PCB
M1P		Main water supply pump
M2P	#	Domestic hot water pump
M2S	#	2-way valve for cooling mode
M3S		3-way valve for floor heating/domestic hot water tank
M4S		Bypass valve for gas boiler
PHC1	*	Optocoupler input circuit
PS		Switching power supply
Q*DI	#	Earth leakage circuit breaker
R1T (A1P)		Outlet water heat exchanger thermistor
R1T (A2P)		Ambient sensor user interface
R1T (A3P)	*	Ambient sensor On/OFF thermostat
R2T (A1P)		Outlet gas boiler thermistor
R2T (A4P)	*	External sensor (floor or ambient)
R3T (A1P)		Refrigerant liquid side thermistor
R4T (A1P)		Inlet water thermistor
R5T (A1P)	*	Domestic hot water thermistor
R6T (A1P)	*	External indoor or outdoor ambient thermistor
R1H (A3P)	*	Humidity sensor
S4S	#	Safety thermostat
SS1 (A4P)	*	Selector switch
TR1, TR2		Power supply transformer
X*M		Terminal strip
X*Y		Connector
	* =	Optional
	# =	Field supply

Translation of text on wiring diagram

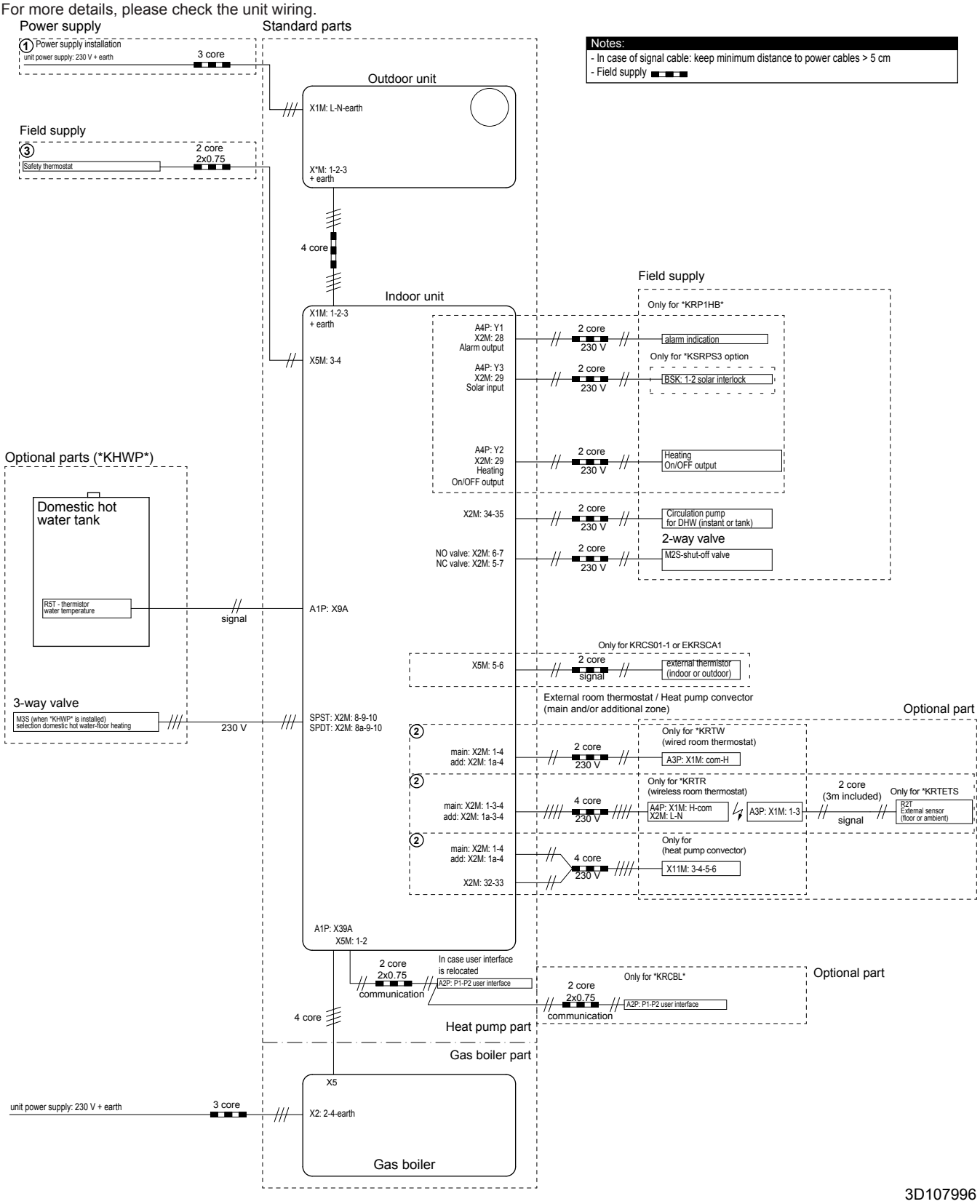
English	Translation
(1) Main power connection	(1) Main power connection
Indoor unit supplied from outdoor	Indoor unit supplied from outdoor
Power supply (standard)	Power supply (standard)
Outdoor unit	Outdoor unit
(2) Gas boiler interconnection	(2) Gas boiler interconnection
Gas boiler	Gas boiler
(3) User interface	(3) User interface
Only for remote user interface option	Only for remote user interface option
(4) Domestic hot water tank	(4) Domestic hot water tank
3 wire type SPDT	3 wire type SPDT
3 wire type SPST	3 wire type SPST
(5) Options	(5) Options
230 V AC supplied by PCB	230 V AC supplied by PCB
Continuous	Continuous current
DHW pump output	Domestic hot water pump output
DHW pump	Domestic hot water pump
Ext. ambient sensor option (indoor or outdoor)	Ext. ambient sensor option (indoor or outdoor)
For safety thermostat option	For safety thermostat option
Inrush	Inrush current
Max. load	Maximum load
Normally closed	Normally closed
Normally open	Normally open
Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)	Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)
Shut-off valve	Shut-off valve
(6) Option PCBs	(6) Option PCBs
Alarm output	Alarm output
Max. load	Maximum load
Min. load	Minimum load
Only for solar pump station	Only for solar pump station
Options: solar pump connection, alarm output, On/OFF output	Options: solar pump connection, alarm output, On/OFF output

English	Translation
Refer to operation manual	Refer to operation manual
Solar pump connection	Solar pump connection
Switch box	Switch box
Thermo On/OFF output	Thermo On/OFF output
(7) External room thermostats and heat pump convector	(7) External room thermostats and heat pump convector
Additional LWT zone	Additional leaving water temperature zone

English	Translation
Main LWT zone	Main leaving water temperature zone
Only for external sensor (floor/ ambient)	Only for external sensor (floor or ambient)
Only for heat pump convector	Only for heat pump convector
Only for wired thermostat	Only for wired thermostat
Only for wireless thermostat	Only for wireless thermostat

Electrical connection diagram

For more details, please check the unit wiring.



8.3 Table 1 – Maximum refrigerant charge allowed in a room: indoor unit

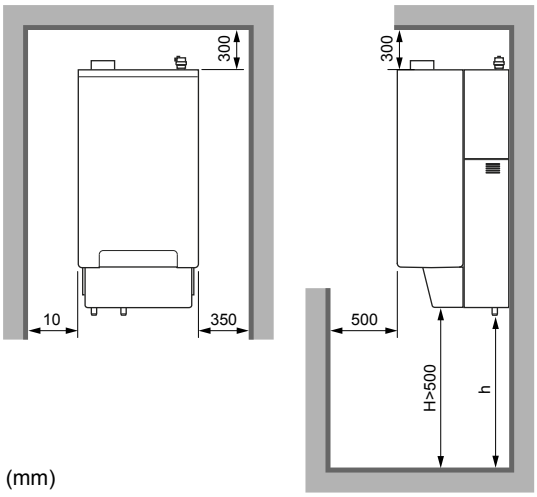
A_{room} (m^2)	Maximum refrigerant charge in a room (m_{max}) (kg)											
	H=500 mm, 600 mm, 700 mm	H=800 mm	H=900 mm	H=1000 mm	H=1100 mm	H=1200 mm	H=1300 mm	H=1400 mm	H=1500 mm	H=1600 mm	H=1700 mm	H=1800 mm
	h=600 mm	h=700 mm	h=800 mm	h=900 mm	h=1000 mm	h=1100 mm	h=1200 mm	h=1300 mm	h=1400 mm	h=1500 mm	h=1600 mm	h=1700 mm
1	0.14	0.16	0.18	0.21	0.23	0.25	0.28	0.30	0.32	0.34	0.37	0.39
2	0.28	0.32	0.37	0.41	0.46	0.50	0.55	0.60	0.64	0.69	0.73	0.78
3	0.41	0.48	0.55	0.62	0.69	0.76	0.83	0.90	0.96	1.03	1.10	1.17
4	0.55	0.64	0.73	0.83	0.92	1.01	1.10	1.19	1.29	1.38	1.47	1.56
5	0.69	0.80	0.92	1.03	1.15	1.26	1.38	1.49	1.61	1.72	1.84	1.95
6	0.83	0.96	1.10	1.24	1.38	1.51	1.65	1.79	1.93	2.07	2.20	2.34
7	0.90	1.05	1.20	1.35	1.51	1.66	1.81	1.96	2.11	2.26	2.41	2.56
8	0.97	1.13	1.29	1.45	1.61	1.77	1.93	2.09	2.25	2.41	2.57	2.74
9	1.02	1.19	1.37	1.54	1.71	1.88	2.05	2.22	2.39	2.56	2.73	2.90
10	1.08	1.26	1.44	1.62	1.80	1.98	2.16	2.34	2.52	2.70	2.88	3.06
11	1.13	1.32	1.51	1.70	1.89	2.08	2.26	2.45	2.64	2.83	3.02	3.21
12	1.18	1.38	1.58	1.77	1.97	2.17	2.37	2.56	2.76	2.96	3.15	3.35
13	1.23	1.44	1.64	1.85	2.05	2.26	2.46	2.67	2.87	3.08	3.28	3.49
14	1.28	1.49	1.70	1.92	2.13	2.34	2.55	2.77	2.98	3.19	3.41	3.62
15	1.32	1.54	1.76	1.98	2.20	2.42	2.64	2.86	3.09	3.31	3.53	3.75
16	1.37	1.59	1.82	2.05	2.28	2.50	2.73	2.96	3.19	3.41	3.64	3.87
17	1.41	1.64	1.88	2.11	2.35	2.58	2.82	3.05	3.28	3.52	3.75	3.99
18	1.45	1.69	1.93	2.17	2.41	2.66	2.90	3.14	3.38	3.62	3.86	4.10
19	1.49	1.74	1.98	2.23	2.48	2.73	2.98	3.22	3.47	3.72	3.97	4.22
20	1.53	1.78	2.04	2.29	2.54	2.80	3.05	3.31	3.56	3.82	4.07	4.33
21	1.56	1.83	2.09	2.35	2.61	2.87	3.13	3.39	3.65	3.91	4.17	4.43
22	1.60	1.87	2.13	2.40	2.67	2.94	3.20	3.47	3.74	4.00	4.27	4.54
23	1.64	1.91	2.18	2.46	2.73	3.00	3.27	3.55	3.82	4.09	4.37	4.64
24	1.67	1.95	2.23	2.51	2.79	3.07	3.34	3.62	3.90	4.18	4.46	4.74
25	1.71	1.99	2.28	2.56	2.84	3.13	3.41	3.70	3.98	4.27	4.55	4.84
26	1.74	2.03	2.32	2.61	2.90	3.19	3.48	3.77	4.06	4.35	4.64	4.93
27	1.77	2.07	2.37	2.66	2.96	3.25	3.55	3.84	4.14	4.43	4.73	5.03
28	1.81	2.11	2.41	2.71	3.01	3.31	3.61	3.91	4.22	4.52	4.82	5.12
29	1.84	2.14	2.45	2.76	3.06	3.37	3.68	3.98	4.29	4.60	4.90	5.21
30	1.87	2.18	2.49	2.80	3.12	3.43	3.74	4.05	4.36	4.67	4.99	5.30
31	1.90	2.22	2.53	2.85	3.17	3.48	3.80	4.12	4.44	4.75	5.07	5.39
32	1.93	2.25	2.57	2.90	3.22	3.54	3.86	4.18	4.51	4.83	5.15	5.47
33	1.96	2.29	2.61	2.94	3.27	3.60	3.92	4.25	4.58	4.90	5.23	5.56
34	1.99	2.32	2.65	2.99	3.32	3.65	3.98	4.31	4.64	4.98	5.31	5.64
35	2.02	2.36	2.69	3.03	3.37	3.70	4.04	4.38	4.71	5.05	5.39	5.72
36	2.05	2.39	2.73	3.07	3.41	3.76	4.10	4.44	4.78	5.12	5.46	5.80
37	2.08	2.42	2.77	3.11	3.46	3.81	4.15	4.50	4.85	5.19	5.54	5.88
38	2.10	2.46	2.81	3.16	3.51	3.86	4.21	4.56	4.91	5.26	5.61	5.96
39	2.13	2.49	2.84	3.20	3.55	3.91	4.26	4.62	4.97	5.33	5.69	6.04
40	2.16	2.52	2.88	3.24	3.60	3.96	4.32	4.68	5.04	5.40	5.76	6.12
41	2.19	2.55	2.91	3.28	3.64	4.01	4.37	4.74	5.10	5.46	5.83	6.19
42	2.21	2.58	2.95	3.32	3.69	4.06	4.42	4.79	5.16	5.53	5.90	6.27
43	2.24	2.61	2.98	3.36	3.73	4.10	4.48	4.85	5.22	5.60	5.97	6.34
44	2.26	2.64	3.02	3.40	3.77	4.15	4.53	4.91	5.28	5.66	6.04	6.42
45	2.29	2.67	3.05	3.44	3.82	4.20	4.58	4.96	5.34	5.73	6.11	6.49
46	2.32	2.70	3.09	3.47	3.86	4.24	4.63	5.02	5.40	5.79	6.17	6.56
47	2.34	2.73	3.12	3.51	3.90	4.29	4.68	5.07	5.46	5.85	6.24	6.63
48	2.37	2.76	3.15	3.55	3.94	4.34	4.73	5.12	5.52	5.91	6.31	6.70
49	2.39	2.79	3.19	3.58	3.98	4.38	4.78	5.18	5.58	5.97	6.37	6.77
50	2.41	2.82	3.22	3.62	4.02	4.43	4.83	5.23	5.63	6.03	6.44	6.84

INFORMATION

- h=The height measured from the floor to the flare nut.
- H=The height measured from the floor to the bottom of the casing.
- For intermediate H values (i.e., when H is between 2 H values from the table), consider the value that corresponds to the lower H value from the table. If H=950 mm, consider the value that corresponds to "H=900 mm".
- In cases where H≤600 mm, h is always considered to be 600 mm, as specified in IEC 60335-2-40:2013 A1 2016, clause GG2.
- For intermediate A_{room} values (i.e., when A_{room} is between 2 A_{room} values from the table), consider the lower A_{room} value from the table. If A_{room}=12.5 m^2, consider the value that corresponds to "A_{room}=12 m^2".
- Systems with a total refrigerant charge (m_c) ≤1.842 kg are NOT subjected to any requirements to the installation room.

8.4 Table 2 – Minimum floor area: indoor unit

m_c (kg)	Minimum floor area (m²)											
	H=500 mm, 600 mm, 700 mm	H=800 mm	H=900 mm	H=1000 mm	H=1100 mm	H=1200 mm	H=1300 mm	H=1400 mm	H=1500 mm	H=1600 mm	H=1700 mm	H=1800 mm
	h=600 mm	h=700 mm	h=800 mm	h=900 mm	h=1000 mm	h=1100 mm	h=1200 mm	h=1300 mm	h=1400 mm	h=1500 mm	h=1600 mm	h=1700 mm
1.80	27.80	20.43	15.64	12.36	10.01	8.27	6.95	6.03	5.60	5.23	4.90	4.61
1.90	30.98	22.76	17.42	13.77	11.15	9.22	7.74	6.60	5.91	5.52	5.17	4.87
2.00	34.32	25.22	19.31	15.25	12.36	10.21	8.58	7.31	6.30	5.81	5.45	5.13
2.10	37.84	27.80	21.29	16.82	13.62	11.26	9.46	8.06	6.95	6.10	5.72	5.38
2.20	41.53	30.51	23.36	18.46	14.95	12.36	10.38	8.85	7.63	6.64	5.99	5.64
2.30	45.39	33.35	25.53	20.17	16.34	13.50	11.35	9.67	8.34	7.26	6.38	5.90
2.40	49.42	36.31	27.80	21.97	17.79	14.70	12.36	10.53	9.08	7.91	6.95	6.16
2.50	53.63	39.40	30.17	23.83	19.31	15.96	13.41	11.42	9.85	8.58	7.54	6.68
2.6	58.00	42.62	32.63	25.78	20.88	17.26	14.50	12.36	10.65	9.28	8.16	7.23
2.7	62.55	45.96	35.19	27.80	22.52	18.61	15.64	13.32	11.49	10.01	8.80	7.79
2.8	67.27	49.42	37.84	29.90	24.22	20.01	16.82	14.33	12.36	10.76	9.46	8.38
2.9	72.16	53.02	40.59	32.07	25.98	21.47	18.04	15.37	13.25	11.55	10.15	8.99
3	77.22	56.74	43.44	34.32	27.80	22.98	19.31	16.45	14.18	12.36	10.86	9.62
3.1	82.46	60.58	46.38	36.65	29.69	24.53	20.61	17.57	15.15	13.19	11.60	10.27
3.2	87.86	64.55	49.42	39.05	31.63	26.14	21.97	18.72	16.14	14.06	12.36	10.95
3.3	93.44	68.65	52.56	41.53	33.64	27.80	23.36	19.90	17.16	14.95	13.14	11.64



(mm)

INFORMATION

- h=The height measured from the floor to the flare nut.
- H=The height measured from the floor to the bottom of the casing.
- For intermediate H values (i.e., when H is between 2 H values from the table), consider the value that corresponds to the lower H value from the table. If H=950 mm, consider the value that corresponds to "H=900 mm".
- In cases where H≤600 mm, h is always considered to be 600 mm, as specified in IEC 60335-2-40:2013 A1 2016, clause GG2.
- For intermediate m_c values (i.e., when m_c is between 2 m_c values from the table), consider the value that corresponds to the higher m_c value from the table. If m_c=2.35 kg, consider "m_c=2.4 kg".
- Systems with a total refrigerant charge (m_c) ≤1.842 kg are NOT subjected to any requirements to the installation room.

8.5 Table 3 – Minimum venting opening area for natural ventilation: indoor unit

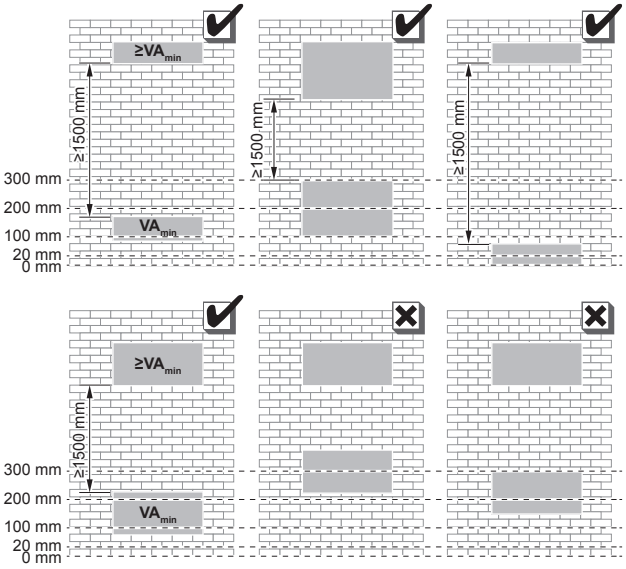
	m_c (kg)	dm=m_c–m_{max} (kg)	Minimum venting opening area (cm^2)											
			H=500 mm, 600 mm, 700 mm	H=800 mm	H=900 mm	H=1000 mm	H=1100 mm	H=1200 mm	H=1300 mm	H=1400 mm	H=1500 mm	H=1600 mm	H=1700 mm	H=1800 mm
			h=600 mm	h=700 mm	h=800 mm	h=900 mm	h=1000 mm	h=1100 mm	h=1200 mm	h=1300 mm	h=1400 mm	h=1500 mm	h=1600 mm	h=1700 mm
3MXM52	1.8	Systems with a total refrigerant charge (m_c) ≤1.842 kg are NOT subjected to any requirements to the installation room.												
3MXM52 + 3MXM68 + 4MXM68	2	1.80	732	678	634	598	567	541	518	498	480	463	449	435
		1.60	651	603	564	532	504	481	460	442	426	412	399	387
		1.40	570	527	493	465	441	421	403	387	373	360	349	339
		1.20	488	452	423	399	378	361	345	332	320	309	299	290
		1.00	442	379	353	332	315	301	288	277	267	258	249	242
		0.80	388	332	291	266	252	241	230	221	213	206	200	194
		0.60	314	269	236	210	189	181	173	166	160	155	150	145
		0.40	224	192	168	150	135	122	115	111	107	103	100	97
		0.20	119	102	89	80	72	65	60	56	54	52	50	49
		0.00												
	2.2	1.98	805	746	698	658	624	595	570	547	527	510	493	479
		1.76	716	663	620	585	555	529	506	487	469	453	439	426
		1.54	627	580	543	512	485	463	443	426	410	396	384	372
		1.32	548	497	465	439	416	397	380	365	352	340	329	319
		1.10	510	437	388	366	347	331	317	304	293	283	274	266
		0.88	447	383	336	298	278	265	253	244	235	227	220	213
		0.66	362	311	272	242	218	199	190	183	176	170	165	160
		0.44	258	222	194	172	155	141	129	122	118	114	110	107
		0.22	137	118	103	92	83	75	69	64	59	57	55	54
		0.00												
3MXM68 + 4MXM68 + 4MXM80 + 5MXM90	2.4	2.16	879	813	761	717	681	649	621	597	575	556	538	522
		1.92	781	723	676	638	605	577	552	531	511	494	478	464
		1.68	683	633	592	558	530	505	483	464	448	432	419	406
		1.44	624	542	507	478	454	433	414	398	384	371	359	348
		1.20	581	498	436	399	378	361	345	332	320	309	299	290
		0.96	510	437	382	340	306	289	276	266	256	247	239	232
		0.72	413	354	310	275	248	225	207	199	192	186	180	174
		0.48	294	252	221	196	177	161	147	136	128	124	120	116
		0.24	156	134	117	104	94	86	78	72	67	63	60	58
		0.00												
4MXM68 + 4MXM80 + 5MXM90	2.6	2.34	952	881	824	777	737	703	673	647	623	602	583	566
		2.08	846	783	733	691	655	625	598	575	554	535	518	503
		1.82	740	685	641	605	574	547	524	503	485	468	454	440
		1.56	703	603	550	518	492	469	449	431	416	402	389	377
		1.30	655	562	492	437	410	391	374	360	346	335	324	314
		1.04	574	492	431	383	345	314	299	288	277	268	259	252
		0.78	465	399	349	310	279	254	233	216	208	201	195	189
		0.52	332	285	249	221	199	181	166	153	143	134	130	126
		0.26	176	151	132	118	106	96	88	82	76	71	66	63
		0.00												

	m_c (kg)	dm=m_c–m_{max} (kg)	Minimum venting opening area (cm²)											
			H=500 mm, 600 mm, 700 mm	H=800 mm	H=900 mm	H=1000 mm	H=1100 mm	H=1200 mm	H=1300 mm	H=1400 mm	H=1500 mm	H=1600 mm	H=1700 mm	H=1800 mm
			h=600 mm	h=700 mm	h=800 mm	h=900 mm	h=1000 mm	h=1100 mm	h=1200 mm	h=1300 mm	h=1400 mm	h=1500 mm	h=1600 mm	h=1700 mm
4MXM80 + 5MXM90	2.8	2.52	1025	949	888	837	794	757	725	696	671	648	628	609
		2.24	911	844	789	744	706	673	644	619	597	576	558	541
		1.96	797	738	691	651	618	589	564	542	522	504	488	474
		1.68	786	674	592	558	530	505	483	464	448	432	419	406
		1.40	732	628	549	488	441	421	403	387	373	360	349	339
		1.12	642	550	482	428	385	350	322	310	299	288	279	271
		0.84	520	446	390	347	312	284	260	240	224	216	210	203
		0.56	371	318	278	247	223	203	186	171	159	149	140	136
		0.28	197	169	148	131	118	108	99	91	85	79	74	70
		0.00												
	3	2.70	1098	1017	951	897	851	811	777	746	719	695	673	653
		2.40	976	904	845	797	756	721	690	663	639	618	598	580
		2.10	881	791	740	698	662	631	604	580	559	540	523	508
		1.80	872	747	654	598	567	541	518	498	480	463	449	435
		1.50	812	696	609	542	488	451	432	415	400	386	374	363
		1.20	712	610	534	475	427	389	356	332	320	309	299	290
		0.90	577	494	433	385	346	315	289	266	247	232	225	218
		0.60	411	353	309	274	247	225	206	190	177	165	155	145
		0.30	218	187	164	146	131	119	109	101	94	88	82	77
		0.00												
	3.2	2.88	1171	1084	1014	956	907	865	828	796	767	741	717	696
		2.56	1041	964	902	850	807	769	736	708	682	659	638	619
		2.24	970	844	789	744	706	673	644	619	597	576	558	541
		1.92	960	823	720	640	605	577	552	531	511	494	478	464
		1.60	895	767	671	597	537	488	460	442	426	412	399	387
		1.28	784	672	588	523	471	428	392	362	341	330	319	310
		0.96	635	545	477	424	381	347	318	294	273	254	239	232
		0.64	453	388	340	302	272	247	227	209	194	181	170	160
		0.32	240	206	180	160	144	131	120	111	103	96	90	85
		0.00												
5MXM90	3.3	2.97	1208	1118	1046	986	936	892	854	821	791	764	740	718
		2.64	1074	994	930	877	832	793	759	730	703	679	658	638
		2.31	1016	871	814	767	728	694	665	638	615	594	576	558
		1.98	1006	862	754	671	624	595	570	547	527	510	493	479
		1.65	937	803	703	625	562	511	475	456	440	425	411	399
		1.32	821	704	616	548	493	448	411	379	352	340	329	319
		0.99	665	570	499	444	399	363	333	307	285	266	250	240
		0.66	474	407	356	316	285	259	237	219	204	190	178	168
		0.33	252	216	189	168	151	138	126	116	108	101	95	89
		0.00												

INFORMATION

- h=Height measured from the floor to the flare nut.
- H=Height measured from the floor to the bottom of the casing.
- In cases where H≤600 mm, h is always considered to be 600 mm, as specified in IEC 60335-2-40:2013 A1 2016 Clause GG2.
- For intermediate H values (i.e., when H is between 2 H values from the table), consider the value that corresponds to the lower H value from the table. If H=950 mm, consider the value that corresponds to "H=900 mm".
- For intermediate dm values (i.e., when dm is between 2 dm values from the table), consider the higher dm value from the table. For 3MXM52 with m_c=2 kg and dm=0.25 kg, consider "dm=0.4 kg".

Following graphics are possible examples about minimum venting opening area for natural ventilation.



WARNING

In case of a different configuration is used, do NOT deviate from requirements mentioned in "3 Preparation" [▶ 4].

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